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25-28 November 2025
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۴-۷ آذر ۱۴۰۴
مرکز نمایشگاه و همایش بین‌المللی ایران‌مال

بیست و هفتمین همایش سالانه و دهمین همایش بین‌المللی آسیب‌شناسی و طب آزمایشگاه

پانزدهمین همایش بین‌المللی شاخه ایرانی آکادمی بین‌المللی پاتولوژی

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Headline: Anatomical Pathology

Headline Title: Genitourinary Pathology

Code: A0310251175902

Title: Evaluation of Programmed death ligand 1 (PD-L1) expression in Prostatic Adenocarcinoma by Immunohistochemistry method and its correlation with tumor clinicopathologic factors

Sender Name: Atieh Zandnejadi

Introduction

Prostatic adenocarcinoma is the most common malignancy among men. Programmed Death Ligand 1 (PD-L1) is an immunological inhibitory receptor that is expressed on many immune cells and may also show aberrant expression on tumor cells, including lung and bladder cancers. it's expression in prostate cancer and its association with the various clinicopathologic factors that impress prognosis was different in many papers. In this study, we investigated the expression of this ligand in prostatic adenocarcinoma and non-neoplastic tissue of prostate in samples obtained from radical prostatectomy.

Material & Methods

Paraffin blocks related to radical prostatectomy samples of 100 patients with prostatic adenocarcinoma who underwent surgery in Sina Hospital from 2011 to 2018 were extracted and stained by PD-L1 antibody with IHC method. Tumor and immune cells staining were scored and their correlation with clinicopathologic factors were evaluated. Also, the expression of this ligand in neoplastic and non-neoplastic tissues compared by each other.

Results

PD-L1 expression in neoplastic and non-neoplastic cells is significantly different (P=0.014). The expression of PD-L1 in tumor cells and immune cells in prostatic adenocarcinoma is associated with Gleason Score (P=0.000 and P=0.002 respectively) and Gleason Grade Group (P=0.000) of the tumor, but the patient's age, preoperative serum PSA, perineural invasion, margin involvement, extra prostatic extension, Tumor pT, presence of PIN, lymph node invasion, seminal vesicle invasion, bladder neck invasion and metastasis are not associated with PD-L1 expression. Lymphovascular invasion was associated with the expression of PD-L1 ligand in immune cells (P=0.001).

Conclusion

Prostatic adenocarcinoma with high Gleason scores may show PD-L1 expression in tumor and immune cells.

Keywords

Prostatic Adenocarcinoma, PD-L1, immunotherapy

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Headline: Anatomical Pathology

Headline Title: Gastrointestinal/hepatobiliary Pathology

Code: A0310254331303

Title: Duodenal Mycobacterium avium Complex Infection Presenting as Polypoid Masses in an HIV-Positive Patient: A Case Report

Sender Name: Fatemeh Faraji Darabkhani

Introduction

Nontuberculous mycobacteria (NTM), particularly Mycobacterium avium and Mycobacterium intracellulare, are opportunistic pathogens that primarily infect immunocompromised individuals (8). Disseminated MAC infection commonly occurs in patients with advanced HIV and low CD4 counts, often below 50 cells/μL (9,10). Gastrointestinal involvement can occur as part of disseminated disease or rarely as isolated enteric infection (11).

Duodenal MAC infection presents as nodular or polypoid lesions that can mimic inflammatory or neoplastic diseases, including xanthomas, Whipple's disease, or adenocarcinoma (12,13). Histologically, the lesions are characterized by expansion of the lamina propria by foamy macrophages filled with acid-fast bacilli (14). Accurate diagnosis requires the use of special stains such as Ziehl–Neelsen or Fite–Faraco and confirmation by culture or molecular methods (15).

Material & Methods

Case Presentation

A 40-year-old woman, known to be HIV-positive for eight years and with a history of pulmonary tuberculosis, presented with recurrent rectal bleeding and intermittent abdominal discomfort. She had inconsistent adherence to antiretroviral therapy.

Endoscopic findings: Upper gastrointestinal endoscopy revealed diffuse nodularity of the duodenal bulb with multiple erosions and polypoid masses extending into the second part of the duodenum .The mucosa appeared thickened but without frank ulceration.

Histopathology: Microscopic examination demonstrated expansion of the lamina propria by large foamy macrophages containing fine vacuolated cytoplasm and eccentric nuclei. The surface epithelium was intact, with no dysplasia or malignancy .(Fig1)

Special stains: Ziehl–Neelsen demonstrated abundant intracellular acid-fast bacilli(Fig2). Periodic acid–Schiff (PAS-D) and Mucicarmine stains were negative, excluding Tropheryma whipplei infection and mucinous lesions(Fig3)

Microbiologic findings: Tissue culture confirmed growth of Mycobacterium avium complex (MAC). The patient was diagnosed with duodenal MAC infection and referred to an infectious disease specialist. She was started on combination therapy consisting of clarithromycin (500 mg twice daily), ethambutol (15 mg/kg daily), and rifabutin (300 mg daily). Antiretroviral therapy was reinitiated concurrently.

Results

Duodenal Mycobacterium avium complex infection is a rare but important consideration in HIV-infected individuals presenting with duodenal nodules or polypoid masses. Diagnosis requires careful histopathologic evaluation, demonstration of acid-fast bacilli, and culture confirmation. Early recognition and initiation of appropriate multidrug therapy are crucial to preventing dissemination and improving outcomes (5,8,9).

Conclusion

Duodenal Mycobacterium avium complex infection is a rare but important consideration in HIV-infected individuals presenting with duodenal nodules or polypoid masses. Diagnosis requires careful histopathologic evaluation, demonstration of acid-fast bacilli, and culture confirmation. Early recognition and initiation of appropriate multidrug therapy are crucial to preventing dissemination and improving outcomes (5,8,9).

Keywords

Mycobacterium avium Complex ,HIV ,duodenum

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Headline: Clinical Pathology

Headline Title: Clinical Informatics

Code: A0310254332201

Title: Evaluating the Serum Levels of CD73 in Patients with Head and Neck

Squamous Cell Carcinoma

Sender Name: Razie Zare

Introduction

The expression of CD73 antigen is associated with different prognoses in

different carcinomas. However, few studies have assessed the level of this marker in squamous cell carcinoma (SCC) as the most common malignancy of the head and neck region.

Purpose: The aim of this study was to determine the serum levels of CD73 in patients with

Material & Methods

This cross-sectional study was done on 60 samples taken from patients with head and neck SCC. A total of 28 healthy individuals were enrolled as the control group. Using the sandwich ELISA method, the serum levels of CD73 were measured. The data were statistically analyzed using the independent t-test and the KruskalWallis test.

Results

The mean serum level of CD73 in the SCC patients (114.38 ng/ml, n=60) was almost similar to that of the healthy controls (137.22 ng/ml, n=28; p Value=0.098). The mean serum levels of CD73 were greater in patients with III/IV-stage tumors than in those with I/II-stage tumors (121.37±55.96 ng/ml, n=28 vs 108.27±39.44 ng/ml, n=32; p= 0.294). No correlation was found between the serum levels of CD73 and sex, age, tumor size, lymph node metastasis, and other organ metastasis

Conclusion

The results of the current study revealed no significant relationship between the serum levels of CD73 and the clinicopathological factors in patients with head and neck SCC. These results suggest that the serum levels of CD73 may not be a useful biomarker for the recognition of the clinical behavior of head and neck SCC. However, the actual role of CD73 in SCC remains unclear and requires further research.

Keywords

CD73 , Squamous Cell Carcinoma

Authors:

(Razie Zare - author)

Headline: Anatomical Pathology

Headline Title: Genitourinary Pathology

Code: A0310251231601

Title: Immunohistochemical Expression of HER2/neu and P16 in High/Low-Grade Urothelial Bladder Carcinoma: A Clinicopathological Study

Sender Name: Haniyeh Kolahi Azar

Introduction

Bladder cancer exhibits significant molecular heterogeneity, necessitating improved biomarkers for risk stratification. This study aimed to evaluate the immunohistochemical expression of HER2/neu and p16 in urothelial carcinoma and assess their associations with tumor grade and clinicopathological features.

Material & Methods

Forty urothelial carcinoma cases (20 low-grade, 20 high-grade) were analyzed for HER2 (scored 0-3+ per ASCO/CAP criteria) and p16 expression (nuclear/cytoplasmic staining, categorized as positive/negative). Statistical analyses included chi-square tests, odds ratios (OR), and effect size calculations.

Results

p16 positivity was strongly associated with high-grade tumors (OR=6.00, 95% CI:1.46–24.69, *p*=0.010), suggesting its prognostic utility. HER2 overexpression (3+) occurred in 37.5% of cases and correlated significantly with p16 status (*p*=0.025), indicating potential pathway crosstalk. HER2 showed borderline association with high-grade tumors (*p*=0.069), but neither marker correlated with muscle/vascular invasion. HER2 3+ tumors were more common in older patients (mean age 72.8 years), while p16-positive cases trended toward older age (69.9 vs. 64.6 years, *p*=0.237).

Conclusion

p16 immunopositivity strongly predicts high-grade disease, supporting its diagnostic utility, while HER2-p16 co-expression may define a distinct molecular subset. Study limitations include sample size and retrospective design. Future prospective studies should validate these biomarkers for therapeutic stratification, particularly HER2-targeted therapies in HER2-overexpressing and p16-positive subgroups.

Keywords

Bladder cancer; Lamina properia invasion

Authors:

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Headline: Anatomical Pathology

Headline Title: Genitourinary Pathology

Code: A0310254331101

Title: Immunohistochemistry-Based Molecular Subtyping of Muscle-Invasive Bladder Cancer and Its Association with PD-1 and PD-L1 Expression: A Practical Approach for Prognostic and Therapeutic Stratification

Sender Name: Mohammadhossein Khorraminejad

Introduction

Muscle-invasive bladder cancer (MIBC) is a molecularly heterogeneous disease with variable clinical outcomes. Molecular classification systems can improve prognostic accuracy and guide immunotherapy. However, transcriptome-based profiling is costly and impractical in many clinical settings. Immunohistochemical (IHC) subtyping using limited markers offers a feasible alternative. Our study aimed to classify MIBC into molecular subtypes using GATA3, CK5/6, and p16 and to evaluate the association of programmed cell death markers PD-1 and PD-L1 with these subtypes.

Material & Methods

In this cross-sectional study, 124 MIBC cases diagnosed between 2020 and 2023 were retrospectively reviewed. IHC staining for GATA3, CK5/6, p16, PD-1, and PD-L1 was performed. Tumors were classified as luminal (GATA3+, CK5/6−), basal (GATA3−, CK5/6+), or other (GATA3−, CK5/6−). Luminal tumors were further subdivided into luminal unstable (LumU; p16+) and luminal papillary (LumP; p16−). PD-1 and PD-L1 expression were analyzed across clinicopathological features and molecular subtypes using Chi-square and Fisher's exact tests.

Results

Among 124 cases, 36.2% were LumU, 27.6% LumP, 24.8% basal, and 11.4% other. The basal subtype was significantly associated with higher tumor stage ($p < 0.05$). PD-1 expression (≥1% cut-off) was detected in 70.5% of cases and was significantly higher in luminal compared to basal tumors (82.1% vs. 53.8%, $p < 0.01$), with LumU showing the highest PD-1 positivity (84.2%). PD-L1 was expressed in 40% of cases and was significantly higher in stage III tumors and in the basal subtype (57.7% vs. 34.3%, $p < 0.05$).

Conclusion

IHC-based molecular classification reflects the biological diversity of MIBC. Basal tumors tend to present at advanced stages and show higher PD-L1 expression, suggesting greater immune evasion potential. Conversely, luminal subtypes, particularly LumU, exhibited higher PD-1 expression, highlighting their distinct immune profiles.

Using three IHC markers, MIBC can be practically subclassified into LumU, LumP, basal, and other subtypes. The observed PD-1 and PD-L1 expression patterns underscore the potential of IHC-based subtyping as a cost-effective tool for prognostic assessment and immunotherapy stratification in MIBC.

Keywords

bladdercancer immunohistochemistry molecularsubtyping immunecheckpointinhibitors

Authors:

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Headline: Anatomical Pathology

Headline Title: Gynecology Pathology

Code: A0310251083003

Title: Isolated Fallopian Tube Hydatid Cyst Presenting as an Acute Abdomen: A Rare Case Report

Sender Name: Masoumeh Gharib

Introduction

Hydatid disease is a parasitic infection caused by Echinococcus granulosus, most commonly involving the liver and lungs. Genital tract involvement is extremely rare, and isolated hydatid cyst of the fallopian tube is an exceptional presentation.

Material & Methods

We report a case of a 36-year-old woman who presented to the emergency department with acute lower abdominal pain and tenderness. She had no significant past medical history or exposure suggestive of echinococcosis.

Results

Ultrasonography revealed a cystic pelvic lesion adjacent to the uterus and ovary. A provisional diagnosis of tubo-ovarian abscess or ruptured cyst was made. The patient underwent emergency laparotomy, which revealed an isolated cystic lesion arising from the ampullary portion of the left fallopian tube, with intact ovaries and uterus. The cyst was excised. Microscopic examination showed laminated acellular eosinophilic membranes with germinal layers and scolices, consistent with hydatid cyst. No other pelvic or abdominal organs were involved.

Conclusion

Isolated hydatid cyst of the fallopian tube is an extremely rare condition that can mimic acute gynecologic emergencies. Awareness of this rare presentation is crucial for appropriate diagnosis and management, especially in endemic regions.

Keywords

Hydatid cyst, Fallopian tube, emergency

Authors:

(Dr. Masoumeh Gharib - corresponding-author)

Headline: Anatomical Pathology

Headline Title: Breast Pathology

Code: A0310251083002

Title: Assessment of Tumor-Infiltrating Lymphocytes in Breast Carcinoma

Sender Name: Masoumeh Gharib

Introduction

Breast cancer remains one of the leading causes of cancer-related mortality among women worldwide. Tumor-infiltrating lymphocytes (TILs) have recently emerged as a cost-effective and promising prognostic biomarker. This study aimed to evaluate the extent of lymphocytic infiltration in breast carcinoma and its prognostic significance.

Material & Methods

This retrospective study analyzed clinical records and pathological specimens from 519 breast cancer patients diagnosed between 2010 and 2015. TILs were assessed in the invasive tumor and invasive margin. Statistical analyses were performed to evaluate associations between TIL density, clinicopathologic features, treatment response, and survival outcomes.

Results

Of the 519 patients, 446 were included in the final analysis, and 236 were evaluated for five-year survival. The degree of lymphocytic infiltration within the invasive tumor was low in 56.46%, moderate in 34.23%, and high in 9.31% of cases. High TIL infiltration was significantly associated with nuclear grade 3 tumors ($P = 0.001$). The five-year mortality rate was 30.91%, 52.31%, and 57.14% for low, moderate, and high TIL groups, respectively ($P = 0.006$). However, multivariate regression did not confirm an independent relationship between TIL levels and overall survival. TILs in the invasive tumor correlated with those in the invasive margin (OR = 0.78, $P = 0.0001$), whereas TILs in the invasive margin showed a negative correlation with TILs in tumor remnants (OR = 0.53, $P = 0.003$).

Conclusion

TILs are associated with tumor grade and survival outcomes in breast carcinoma but do not independently predict prognosis. Incorporating TIL assessment alongside established prognostic factors may enhance risk stratification in breast cancer patients.

Keywords

Breast Neoplasms, Tumor-Infiltrating Lymphocytes,

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Headline: Anatomical Pathology

Headline Title: Gynecology Pathology

Code: A0310251083001

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Title: Assessment of Tumor-Infiltrating Lymphocytes and Their Association with Survival in Ovarian Carcinoma

Sender Name: Masoumeh Gharib

Introduction

Tumor-infiltrating lymphocytes (TILs) have been associated with favorable prognosis in several solid malignancies. However, studies on ovarian carcinoma remain limited and have shown conflicting findings. This study aimed to evaluate TIL infiltration and tumor front (TF) characteristics in ovarian carcinoma and assess their association with patient survival outcomes.

Material & Methods

Clinical data and pathological specimens from 150 patients diagnosed with ovarian carcinoma between 2014 and 2018 at Qaem Hospital were retrospectively analyzed. The proportions of TILs and TF were quantified in histological sections, and their correlation with disease-specific survival (DSS) and disease-free survival (DFS) was examined.

Results

The mean percentages of TILs and TF were 14.5 ± 14.2% and 22.5 ± 18.7%, respectively. The 4-year DSS and DFS rates were 50.7% and 48.7%. No significant association was observed between TILs and DSS ($P = 0.145$) or DFS ($P = 0.165$). Similarly, TF showed no significant correlation with DSS ($P = 0.096$) or DFS ($P = 0.117$).

Conclusion

Although no significant association was found between lymphocytic infiltration and survival in ovarian carcinoma, further studies with larger cohorts and detailed assessment of lymphocyte subtypes are warranted to clarify their prognostic significance.

Keywords

Tumor-infiltrating lymphocytes; Ovarian carcinoma; Prognosis.

Authors:

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Headline: Anatomical Pathology

Headline Title: Artificial Intelligence In Pathology

Code: A0310252247210

Title: The Evolution of Pathology: From Ancient Humors to Molecular Precision

Sender Name: Tahere Eslammanesh

Introduction

Pathology has transformed from the ancient humoral theories of Hippocrates to the molecular diagnostics of modern medicine. Despite its central role in patient care, a comprehensive synthesis of pathology's historical evolution is limited. This review critically examines key milestones, paradigm shifts, and technological innovations that shaped contemporary pathology, providing insights into its scientific foundations and clinical impact.

Material & Methods

A systematic narrative review was conducted using primary historical texts, archival manuscripts, and peer-reviewed literature from ancient, medieval, and modern eras. Databases including PubMed, Scopus, and historical archives were searched using terms such as "history of pathology," "disease classification," "histopathology evolution," and "diagnostic innovation." Seminal contributions, including autopsy-based diagnostics, microscopy by Morgagni and Virchow, histochemistry, immunohistochemistry, and molecular pathology, were analyzed. Chronological mapping and thematic synthesis identified critical turning points in pathology education, research, and clinical practice, emphasizing the interplay of technological advances and conceptual refinement.

Results

Five evolutionary phases were identified: humoral and anatomical observations, systematic autopsy-based pathology, microscopic and cellular pathology, chemical and immunological tissue characterization, and molecular/digital pathology. Landmark discoveries, such as morphological-clinical correlations, immunohistochemical biomarkers, and genomic profiling, revolutionized diagnostic accuracy, prognostication, and therapy guidance. Technological innovation consistently drove conceptual advances, shaping pathology into a precise and predictive discipline.

Conclusion

Pathology's evolution demonstrates a dynamic interaction between observation, technology, and scientific reasoning. Understanding its history enhances appreciation for current diagnostic capabilities and informs future directions, including precision medicine and computational pathology. Historical insight highlights pathology as a foundational discipline driving translational medicine and patient-centered care.

Keywords

Pathology History Evolution Molecular Precision

Authors:

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Headline: Anatomical Pathology

Headline Title: Forensic Pathology

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Code: A0310252247209

Title: Diagnostic Errors and Specimen Provenance Complications in Pathology: A Systematic Review of Medical Malpractice Cases and Legal Outcomes

Sender Name: Tahere Eslammanesh

Introduction

Diagnostic errors in pathology represent a significant concern in medical practice, often leading to adverse patient outcomes and legal ramifications. This review aims to systematically analyze medical malpractice cases related to diagnostic errors and specimen provenance complications in pathology, examining the frequency, causes, and legal outcomes associated with these incidents.

Material & Methods

A comprehensive literature search was conducted across multiple databases, including PubMed, Scopus, and legal case repositories, to identify studies and reports detailing medical malpractice cases in pathology. Inclusion criteria encompassed peer-reviewed articles, legal case studies, and institutional reports published in the last two decades. Data extracted included the type of diagnostic error (e.g., false negatives, misidentification), specimen provenance issues (e.g., specimen mix-ups, contamination), legal outcomes (e.g., settlements, verdicts), and contributing factors (e.g., human error, system failures). A qualitative synthesis was performed to categorize and analyze the data.

Results

The analysis revealed that diagnostic errors account for a substantial proportion of medical malpractice claims in pathology. Notably, false negative diagnoses, particularly in melanoma and breast cancer cases, were prevalent. Specimen provenance complications, such as specimen mix-ups and contamination, also emerged as significant contributors to diagnostic inaccuracies. Legal outcomes varied, with a notable percentage of cases resulting in settlements or rulings favoring plaintiffs. Contributing factors included human errors during specimen handling and systemic issues within laboratory processes.

Conclusion

Diagnostic errors and specimen provenance complications in pathology pose serious risks to patient safety and contribute to a considerable number of medical malpractice cases. Addressing these issues requires a multifaceted approach, including enhanced training for pathologists, implementation of robust specimen tracking systems, and systemic improvements in laboratory practices. Legal analyses underscore the importance of adhering to established standards of care to mitigate malpractice risks.

Keywords

Medical malpractice, pathology, legal outcomes

Authors:

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Headline: Clinical Pathology

Headline Title: Quality Management

Code: A0310252247208

Title: Unseen Pitfalls in Tissue Specimen Transfer: Hidden Sources of Diagnostic Error and Strategies for Prevention in Surgical Pathology

Sender Name: Tahere Eslammanesh

Introduction

Accurate pathological diagnosis begins long before the slide reaches the microscope. Errors occurring during the pre-analytical phase—particularly during tissue collection, labeling, fixation, and interdepartmental transfer—remain an underestimated cause of diagnostic inaccuracy. This review explores the hidden spectrum of specimen transfer errors, from mislabeled or fragmented samples to fixation artifacts induced by transport delay. The objective is to systematically categorize these errors, analyze their impact on diagnostic reliability, and propose practical solutions tailored to real-world pathology workflows.

Material & Methods

A comprehensive narrative review was performed using PubMed, Embase, and regional pathology databases up to 2025. Studies, case series, and institutional audits addressing pre-analytical and transfer-related errors in surgical pathology were included. Gray literature, including laboratory accreditation reports and internal quality management data, were also examined. Errors were classified according to their source—human (identification and labeling mistakes), technical (improper fixation, leakage, or contamination), and systemic (inefficient chain of custody, communication gaps between operating rooms and pathology units).

Risk frequency and clinical consequences were summarized. Evidence-based interventions such as digital tracking systems, barcoding, standardized tissue transport media, pre-filled checklists, and mandatory communication protocols were critically appraised. Expert consensus statements and CAP/ISO 15189 recommendations were integrated into a synthesized framework for error reduction.

Results

Across reviewed data, specimen transfer errors contributed to 10–18% of total pre-analytical mistakes, with labeling mismatches and fixation delays being the most prevalent. Institutions implementing dual verification, barcoded labeling, and electronic chain-of-custody documentation reported a reduction of up to 70% in transfer-related discrepancies. Effective communication between surgical and pathology staff, coupled with real-time sample tracking, emerged as the most impactful corrective measures.

Conclusion

Transfer-related tissue errors are an underrecognized threat to diagnostic accuracy in surgical pathology. Systematic surveillance, digital traceability, and cross-departmental accountability represent key preventive

strategies. Cultivating a “pre-analytical safety culture,” integrating smart transport systems, and routine feedback loops between surgeons and pathologists can substantially mitigate avoidable misdiagnoses and enhance laboratory reliability.

Keywords

Specimen Pre-analytical phase Diagnostic accuracy

Authors:

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Headline: Clinical Pathology

Headline Title: Molecular Genetic Pathology

Code: A0310252247207

Title: Decoding the Genetic Blueprint of Warfarin Response: Integrating Pharmacogenomics into Personalized Anticoagulation Therapy

Sender Name: Tahere Eslammanesh

Introduction

Warfarin remains a cornerstone of oral anticoagulant therapy, yet its narrow therapeutic index and interindividual variability pose major clinical challenges. Emerging evidence highlights the critical influence of genetic polymorphisms—particularly in *CYP2C9*, *VKORC1*, and *CYP4F2*—on dose requirements, therapeutic stability, and risk of hemorrhagic events. This review aims to elucidate the molecular basis of genetic determinants modulating warfarin pharmacokinetics and pharmacodynamics, and to explore the clinical potential of integrating pharmacogenomic testing into routine pathology-based anticoagulation management.

Material & Methods

This review systematically synthesized peer-reviewed publications from 2005 to 2025 retrieved through PubMed, Embase, and Cochrane databases. Studies examining the association between warfarin dose variability and genetic variants were included. Data on allele frequencies, genotype-phenotype correlations, and predictive algorithms such as the *International Warfarin Pharmacogenetics Consortium (IWPC)* model were extracted. Functional studies elucidating the mechanistic impact of *CYP2C9* and *VKORC1* polymorphisms on enzyme kinetics, vitamin K epoxide reductase activity, and warfarin metabolism were critically appraised. Additionally, next-generation sequencing (NGS) and multi-omic approaches integrating transcriptomics and epigenetic markers were reviewed to assess their potential role in refining genotype-guided dosing models.

Results

Analysis revealed that *VKORC1 -1639G>A* and *CYP2C9* (*2 and *3) variants account for up to 60% of interindividual dose variability. The *CYP4F2* V433M polymorphism adds further modulation by influencing hepatic vitamin K oxidation. Novel insights from NGS studies suggest that rare variants, microRNA regulation, and epigenetic methylation patterns significantly impact warfarin sensitivity. Incorporating multi-gene algorithms improved time-in-therapeutic-range (TTR) and reduced adverse bleeding events compared with conventional dosing.

Conclusion

Genetic determinants play a pivotal role in individual warfarin response, transforming anticoagulant therapy from empirical dosing toward precision medicine. Integration of pharmacogenomic testing into routine pathology workflows—supported by NGS platforms and bioinformatics interpretation—can enhance therapeutic safety and efficacy. Future directions include development of cost-effective, rapid-turnaround genetic panels and incorporation of polygenic and epigenomic markers for truly personalized anticoagulation management.

Keywords

Warfarin Pharmacogenomics CYP2C9 VKORC1 Precision_Medicine

Authors:

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Headline: Clinical Pathology

Headline Title: Quality Management

Code: A0310252247206

Title: Revolutionizing Patient Identification and Specimen Integrity: Integrative Strategies Using AI-Driven Verification, Digital Chain-of-Custody, and Human-Factor Engineering in Pathology Laboratories

Sender Name: Tahere Eslammanesh

Introduction

Patient misidentification and specimen labeling errors remain among the most preventable yet impactful causes of diagnostic inaccuracy in pathology and clinical laboratories. Despite technological advancements, human and system-level vulnerabilities persist. This review aims to synthesize evidence-based, innovative approaches—spanning artificial intelligence (AI), digital traceability systems, and behavioral redesign—to minimize pre-analytical identification errors. The objective is to define a high-reliability model for patient and specimen identity assurance applicable to both high- and low-resource pathology settings.

Material & Methods

A structured literature review was conducted using PubMed, Scopus, and Embase databases (2015–2025). Articles focusing on specimen misidentification, labeling errors, digital tracking systems, and AI-assisted verification in pathology workflows were included. Studies were analyzed according to three strategic domains: technological innovations—AI-powered image and barcode verification, blockchain-based chain-of-custody, and RFID-enabled specimen tracking; human-factor engineering—workflow ergonomics, cognitive load reduction, and behavioral nudges; and system integration frameworks—interfacing laboratory information systems (LIS) with hospital electronic medical records (EMR) for real-time validation. Additionally, successful implementation models from high-reliability industries (aviation, nuclear medicine) were reviewed for transferable risk-reduction principles. The data were synthesized into a comprehensive taxonomy of interventions, highlighting cost-effectiveness, scalability, and impact on diagnostic accuracy.

Results

Findings indicate that AI-assisted specimen verification and RFID-based identity tracking can reduce pre-analytical misidentification by up to 80%. Integration of blockchain and LIS-EMR interoperability ensures immutable digital traceability, enhancing medico-legal reliability. Human-centered process redesign—such as visual redundancy, double-verification at accessioning, and color-coded error alerts—further enhances compliance and reduces cognitive errors. The combined application of these strategies forms a predictive, self-correcting system capable of sustaining near-zero identification errors.

Conclusion

Preventing patient misidentification requires more than technological upgrades—it demands a holistic synthesis of digital innovation, human-factor optimization, and systems engineering. This review proposes an integrative model that aligns AI-driven verification with behavioral safety culture, redefining pre-analytical reliability in pathology laboratories. Future implementation of such hybrid systems will not only improve diagnostic accuracy but also reinforce patient trust, laboratory accreditation standards, and global safety benchmarks in laboratory medicine.

Keywords

Patient identification Specimen integrity AI

Authors:

(Tahere Eslammanesh - corresponding-author)

Headline: Anatomical Pathology

Headline Title: Gastrointestinal/hepatobiliary Pathology

Code: A0310251045902

Title: The Chemistry of Gallstones: Linking Chemical Composition to Gross Morphology and Treatment Modality in a Southern Iranian Population

Sender Name: Neda Soleimani

Introduction

The management of gallstone disease necessitates a thorough understanding of the various stone types and their chemical composition. While studies on gallstones have been conducted worldwide, no research has been performed in southern Iran.

Material & Methods

This cross-sectional study analyzed 164 cholecystectomy specimens from patients with symptomatic gallstones over a 6-month period. Demographic data, stone type, histological diagnosis, and chemical composition of blood and stones—including cholesterol, calcium, phosphate, and bilirubin—were examined using an autoanalyzer and manual methods.

Results

Most patients (78.7%) were female, 21.3% were male, and the average age was above 40 years. Mixed stones were the most common type (52.4%), followed by cholesterol and pigment stones. All stone types were more prevalent in women. Patients over 40 were more likely to have mixed and pigment stones, whereas younger patients had a higher incidence of cholesterol stones. Chronic cholecystitis was the most frequent histological finding (86%), followed by acute cholecystitis. One case demonstrated carcinoma in situ. Cholesterol concentration was highest in cholesterol stones ($P<0.0001$), whereas calcium and bilirubin levels were highest in pigment stones ($P<0.0001$). Only bilirubin levels showed a significant correlation with stone type in blood analysis.

Conclusion

Different geographical regions, as well as various areas within a country, experience distinct types of gallstones. Accurate classification of gallstones is essential for optimal gallstone treatment, highlighting the importance of designing such research in every region.

Keywords

Chemical analysis, Gallbladder, Gallstones

Authors:

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Headline: Anatomical Pathology

Headline Title: Gastrointestinal/hepatobiliary Pathology

Code: A0310251045901

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25-28 November 2025 Iranmall, Tehran, Iran
۴-۷ آذر ۱۴۰۴ مرکز نمایشگاه و همایش بین‌المللی ایران‌مال

Title: Retrospective study of splenectomy specimens with clinical and pathological features in Southern Iran

Sender Name: Neda Soleimani

Introduction

The spleen is the target of numerous non-neoplastic and uncommon neoplastic lesions. Our study's objective was to evaluate the main indications and clinicopathologic features of a large number of splenectomy specimens from southern Iran, with a focus on splenic neoplasms.

Material & Methods

This five-year retrospective cross-sectional study was carried out on all splenectomy specimens from two referring centers. The hospital-recorded files and hematoxylin and eosin histopathology slides were reviewed in order to collect demographic information, the primary causes of splenectomy, and histopathological findings. Immunohistochemistry was performed in cases of splenic neoplasms.

Results

Of the 803 splenectomy cases, splenic rupture from accidents accounted for 36.3% and hematologic diseases for 31.1% of the procedures. Splenectomies were performed in 24% of cases as a result of staging and surgery for other cancers of the abdominal organs; in general, 3.4% were involved by direct tumor invasion or metastasis. Hydatid cysts, epithelial cysts, pseudocysts, granulomatous inflammation, and storage diseases, in order, accounted for 6.6% of spleens with the non-neoplastic lesions. The 1.8% of cases that were primary splenic neoplasms included 10 vascular tumor cases (including 4 hamartomas, 3 littoral cell angiomas, 1 hemangioma, 1 lymphangioma, and 1 sclerosing angiomatoid nodular transformation) and 4 lymphoma instances, all of which were DLBCL.

Conclusion

As the spleen has numerous physiologic functions, it has the capacity to cause numerous traumatic, hematologic, infectious, benign, or malignant primary or metastatic neoplastic lesions. Many different pathologies should therefore be considered when evaluating the pathologic status of splenectomy cases.

Keywords

Spleen, Splenectomy, Splenic lesion

Authors:

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Headline: Clinical Pathology

Headline Title: Quality Management

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25-28 November 2025 Iranmall, Tehran, Iran
۴-۷ آذر ۱۴۰۴ مرکز نمایشگاه و همایش بین‌المللی ایران‌مال

Code: A0310252247205

Title: Innovative Strategies to Minimize Human Errors in Pathobiology and Clinical Diagnostic Laboratories: From Automation to Cognitive Safety

Sender Name: Tahere Eslammanesh

Introduction

Human errors remain a predominant source of diagnostic inaccuracies in laboratories, including mislabeling, sample mishandling, and interpretative mistakes. This review synthesizes evidence on strategies to mitigate human errors, emphasizing system-based interventions, cognitive ergonomics, and automation to enhance diagnostic reliability and laboratory excellence.

Material & Methods

A literature search was conducted in PubMed, Scopus, and Embase for studies addressing human error reduction in pathology and clinical diagnostic laboratories. Selected studies were categorized into four domains: pre-analytical interventions (barcoding, digital accessioning, training), analytical error mitigation (automated analyzers, robotics, digital pathology, AI-assisted diagnostics), post-analytical strategies (checklists, double reporting, structured reporting, error-tracking software), and cognitive/organizational approaches (ergonomic workflow design, cognitive load reduction, continuous competency assessment, error culture promotion). Emphasis was on technology, human-centered design, and quality improvement initiatives.

Results

Multimodal interventions combining automation, AI-assisted decision support, and structured human oversight significantly reduce laboratory errors. Barcoding and digital accessioning reduce misidentification by up to 85%, AI-assisted slide review improves diagnostic consistency, and ergonomic workflow redesign mitigates cognitive fatigue. Error-tracking systems foster proactive quality improvement and a safety-oriented laboratory culture.

Conclusion

Human errors in laboratories are preventable. Integrating technology, cognitive ergonomics, and systematic quality improvement creates a robust framework to minimize errors. Future laboratory design should prioritize AI, automation, and human-centered workflows to enhance diagnostic accuracy, patient safety, and professional accountability.

Keywords

Laboratory_Error Automation AI Safety Pathobiology

Authors:

(Tahere Eslammanesh - corresponding-author)

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25-28 November 2025 Iranmall, Tehran, Iran
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Headline: Anatomical Pathology

Headline Title: Artificial Intelligence In Pathology

Code: A0310252247204

Title: Revolutionizing Pathobiology Laboratories: Integrating Artificial Intelligence for Predictive Diagnostics and Workflow Optimization

Sender Name: Tahere Eslammanesh

Introduction

Artificial intelligence (AI) has emerged as a transformative tool in biomedical sciences, yet its full potential in pathobiology laboratories remains underexplored. This review aims to evaluate novel AI-driven applications in diagnostic histopathology, cytopathology, and molecular testing, emphasizing predictive analytics, pattern recognition, and workflow automation. We highlight opportunities to enhance diagnostic accuracy, reduce turnaround time, and integrate AI with multi-omics datasets for personalized medicine.

Material & Methods

A systematic literature review was conducted using PubMed, Scopus, and Embase databases, focusing on studies published between 2015 and 2025. Keywords included “artificial intelligence,” “machine learning,” “deep learning,” “pathology laboratory,” and “diagnostic automation.” Articles describing AI applications in tissue image analysis, digital cytology, predictive biomarker identification, and laboratory workflow optimization were included. Data extraction focused on algorithm type, input data modality, performance metrics (accuracy, sensitivity, specificity), integration feasibility, and clinical impact. Emphasis was placed on innovative approaches leveraging convolutional neural networks (CNNs), transformer-based models, and federated learning to address data privacy and multi-institutional collaboration. Challenges such as interpretability, standardization, and regulatory compliance were systematically analyzed. Emerging trends in AI-driven predictive diagnostics, including early detection of malignancies, quantification of tumor microenvironment, and integration with genomic, proteomic, and metabolomic datasets, were synthesized to propose a roadmap for next-generation pathobiology laboratories.

Results

AI applications demonstrated substantial improvements in diagnostic precision, with deep learning models achieving >95% accuracy in tumor subtype classification and cytological atypia detection. Workflow optimization algorithms reduced sample processing time by 30–50%, minimizing human error and resource utilization. Integration with multi-omics data enhanced predictive modeling for treatment response and prognosis stratification. Federated learning approaches enabled collaborative model training across institutions while maintaining patient data privacy. Despite significant advancements, variability in image acquisition, algorithm transparency, and regulatory constraints remain primary barriers to clinical adoption.

Conclusion

AI integration in pathobiology laboratories represents a paradigm shift, enabling predictive, precise, and personalized diagnostics. Novel deep learning architectures, multi-modal data fusion, and workflow automation hold promise for transforming laboratory efficiency and patient outcomes. Strategic focus on interpretability, standardization, and ethical implementation is essential to fully realize AI's potential in routine pathology practice.

Keywords

Artificial Intelligence Pathobiology Diagnostics Automation

Authors:

(Tahere Eslammanesh - corresponding-author)

Headline: Clinical Pathology

Headline Title: Molecular Genetic Pathology

Code: A0310252247203

Title: Emerging Insights in Breast Cancer: Integrative Multi-Omics, Tumor Microenvironment, and Liquid Biopsy Biomarkers

Sender Name: Tahere Eslammanesh

Introduction

Breast cancer remains the most prevalent malignancy among women worldwide, with molecular heterogeneity posing significant challenges in diagnosis and treatment. Recent advances in multi-omics technologies, spatial transcriptomics, and liquid biopsy have revolutionized our understanding of tumor biology. This review aims to summarize the latest discoveries regarding molecular signatures, tumor microenvironmental dynamics, and circulating biomarkers that hold potential for precision pathology and personalized therapy in breast cancer.

Material & Methods

A comprehensive literature review was conducted using PubMed, Embase, and Scopus databases up to September 2025. Keywords included *breast cancer, omics, tumor microenvironment, spatial transcriptomics, and liquid biopsy*. Eligible studies were selected based on relevance to recent molecular or pathological discoveries. Data were extracted focusing on (1) integrative multi-omics profiling (genomics, transcriptomics, proteomics, metabolomics), (2) microenvironmental characterization using single-cell and spatial techniques, (3) identification of novel circulating biomarkers (cfDNA, exosomes, CTCs), and (4) implications for diagnostic pathology and therapeutic decision-making. Key findings from clinical and translational studies were critically analyzed to highlight their potential impact on precision oncology and routine diagnostic workflows.

Results

Recent findings reveal the pivotal role of *multi-omics integration* in redefining breast cancer subtypes beyond classical PAM50 classification. Spatial transcriptomics and multiplex imaging have elucidated complex tumor-immune interactions that predict therapeutic response. Circulating tumor DNA and exosomal miRNAs demonstrate high diagnostic sensitivity for minimal residual disease and early recurrence detection. Integration of these novel modalities into pathological evaluation offers unprecedented precision in tumor characterization and patient stratification.

Conclusion

Emerging molecular and spatial technologies are transforming the diagnostic landscape of breast cancer. Multi-omics integration, assessment of the tumor microenvironment, and liquid biopsy biomarkers collectively bridge the gap between molecular research and applied pathology. These advances promise to refine histopathological interpretation, guide targeted therapy, and enhance patient outcomes. Incorporating these tools into routine diagnostic practice is the next frontier for modern breast cancer pathology.

Keywords

breast cancer multi-omics microenvironment biomarkers

Authors:

(Tahere Eslammanesh - corresponding-author)

Headline: Clinical Pathology

Headline Title: Clinical Chemistry/Immunology

Code: A0310252247202

Title: Peripheral Immune Tolerance: The Central Role of Regulatory T Cells in Maintaining Immune Homeostasis

Sender Name: Tahere Eslammanesh

Introduction

Peripheral immune tolerance is critical for preventing autoimmunity while allowing effective responses against pathogens. Regulatory T cells (Tregs), a specialized subset of $CD4^+$ T lymphocytes expressing FOXP3, play a central role in modulating immune responses in peripheral tissues. This review aims to summarize current understanding of Treg-mediated mechanisms of peripheral tolerance, highlighting their phenotypic heterogeneity, functional plasticity, and crosstalk with antigen-presenting cells.

Material & Methods

A systematic literature search was conducted using PubMed, Scopus, and Web of Science databases for articles published up to 2025. Keywords included "regulatory T cells," "peripheral tolerance," "immune regulation," and "FOXP3." Original research articles, reviews, and meta-analyses focusing on murine and human studies were included. Data extraction emphasized Treg subsets (natural vs induced), suppressive

mechanisms (cytokine secretion, metabolic disruption, cytolysis, and modulation of dendritic cells), and their role in peripheral immune tolerance in autoimmunity, transplantation, and chronic inflammation. Functional assays, flow cytometry, in vivo depletion studies, and transcriptional profiling were analyzed to evaluate Treg efficacy and plasticity in peripheral compartments.

Results

Tregs maintain peripheral tolerance through multiple mechanisms, including IL-10, TGF-β, and IL-35 secretion, CTLA-4-mediated suppression of antigen-presenting cells, and metabolic modulation via CD39/CD73 pathways. Distinct Treg subsets exhibit tissue-specific functions, e.g., gut-homing Tregs mediate oral tolerance, whereas skin-resident Tregs control local autoimmunity. Treg instability and phenotypic conversion under inflammatory conditions can compromise tolerance, contributing to autoimmune pathogenesis. Emerging evidence highlights the therapeutic potential of Treg expansion or adoptive transfer to restore peripheral tolerance in clinical settings.

Conclusion

Regulatory T cells are indispensable for peripheral immune tolerance, employing multifaceted suppressive mechanisms to prevent aberrant immune activation. Understanding their functional diversity and context-dependent plasticity provides insights for novel therapeutic strategies in autoimmune diseases, transplantation, and chronic inflammatory disorders. Targeting Treg stability and function represents a promising avenue to reinforce immune homeostasis.

Keywords

Regulatory T cells Peripheral tolerance

Authors:

(Tahere Eslammanesh - corresponding-author)

Headline: Anatomical Pathology

Headline Title: Genitourinary Pathology

Code: A031025007301

Title:

Incidental Invasive Mucinous Adenocarcinoma of the Renal Pelvis in a Patient with Chronic Pyelonephritis: A Rare Case Report

Sender Name: Alireza Rastguy Haghi

Introduction

Primary adenocarcinomas of the renal pelvis are extremely rare, accounting for less than 1% of all renal epithelial malignancies. Among these, the mucinous subtype is exceptional. Chronic inflammation and

long-standing pyelonephritis have been suggested as possible predisposing factors. We present a case of an elderly patient who underwent nephrectomy for a clinically impression of non-functional kidney with cystic changes, in whom mucinous adenocarcinoma of the renal pelvis was incidentally discovered.

Material & Methods

We report a 71-year-old male who underwent left nephrectomy due to a non-functional kidney. Grossly, the deformed kidney measured 12.5 × 8 × 4 cm, with multiple cystic lesion and atrophic parenchyma. The renal pelvis contained a gray-tan, friable lesion measuring 1× 0.6 × 0.3 cm, partly cystic and containing mucin.

Results

Histological examination from renal pelvis revealed neoplastic proliferation composed of tumor cells with hyperchromatic nuclei, mild to moderate nuclear atypia, and abundant clear cytoplasm, arranged predominantly in tubulovillous structures. Foci of extracellular mucin were identified, with floating clusters and isolated tumor cells. The surrounding renal parenchyma demonstrated chronic pyelonephritis, interstitial fibrosis, tubular atrophy, and glomerulosclerosis.

Diagnosis: Invasive mucinous adenocarcinoma of the renal pelvis (incidental finding) associated with Chronic tubulointerstitial nephritis.

Conclusion

This case highlights the diagnostic importance of careful histopathological evaluation of nephrectomy specimens performed for non-neoplastic conditions. Primary mucinous adenocarcinoma of the renal pelvis, though extremely rare, should be considered in the differential diagnosis of mucin-secreting renal pelvic tumors.

Keywords

pelvis , Invasive Mucinous adenocarcinoma

Authors:

(Alireza Rastguy Haghi - author)

Headline: Anatomical Pathology

Headline Title: Genitourinary Pathology

Code: A031025005802

Title: Investigation of the Association Between the Neutrophil-to-Lymphocyte Ratio and Red Blood Cell Distribution Width (RDW) With Gleason Grading in Prostate Cancer

Sender Name: Shiva Didehban

Introduction

Prostate cancer is one of the most prevalent malignancies among men worldwide. Identifying noninvasive and cost-effective biomarkers for assessing tumor aggressiveness is essential for timely diagnosis and management. This study aimed to evaluate the association of the neutrophil-to-lymphocyte ratio (NLR) and red blood cell distribution width (RDW) with Gleason grading and prostate-specific antigen (PSA) levels in patients with prostate cancer.

Material & Methods

This descriptive-analytical cross-sectional study was conducted on 101 patients diagnosed with prostate cancer who were referred to Shahid Bahonar Hospital, Kerman, Iran, during 2024–2025. The inclusion criteria were histopathologically confirmed prostate cancer and the availability of pre-biopsy complete blood count (CBC) and PSA results. Data collected included age, NLR, RDW, PSA levels, and Gleason score. Statistical analysis was performed using descriptive indices, one-way ANOVA, Tukey's post hoc test, and Spearman's correlation, with a significance level set at $p < 0.05$.

Results

The mean age of the participants was 67.6 ± 7.9 years (range: 52–94). Most patients were classified as Gleason grade 4 (40.6%) or grade 5 (33.7%). The mean NLR was 2.98 ± 1.13, and the mean RDW was 14.05 ± 1.13%. A significant association was observed between NLR and Gleason grade ($p < 0.001$). Patients with Gleason grade 5 had the highest NLR (3.60 ± 1.19), while those with grade 3 had the lowest (2.17 ± 0.73). RDW demonstrated a moderate positive correlation with Gleason grade (Spearman's $r = 0.437$, $p < 0.001$). Both NLR and RDW were significantly correlated with PSA levels (NLR: $r = 0.394$, $p < 0.001$; RDW: $r = 0.264$, $p = 0.008$).

Conclusion

This study demonstrates that elevated NLR and RDW are significantly associated with higher Gleason grades and PSA levels, suggesting their potential as accessible and cost-effective markers for assessing prostate cancer aggressiveness. Incorporating these hematologic indices into clinical evaluation may improve early risk stratification and guide decision-making in prostate cancer management.

Keywords

ProstaticNeoplasms PSA RedCellDistributionWidth

Authors:

(Dr Elham Jafari - author) (Shiva Didehban - corresponding-author) (Fatemeh Heidari Nia - author)

Headline: Clinical Pathology

Headline Title: Clinical Microbiology

Code: A0310251171501

Title: Antifungal susceptibility pattern of Candida species isolated from vaginal discharge

Sender Name: Solmaz Basiri

Introduction

Vulvovaginal candidiasis is one of the most common causes of vaginitis in women. Patients frequently experience relapse and reinfection. Various factors, including social conditions, medication use, diabetes, diet, sexual health, and immune deficiencies, contribute to the development and increased severity of the disease. The Candida genus, particularly Candida albicans, is the primary causative agent. However, the prevalence of non-albicans species, such as Candida glabrata, along with rising antifungal drug resistance, has made accurate diagnosis and drug susceptibility testing a priority for researchers and clinicians.

Material & Methods

A total of 32 patients referred to a specialized medical mycology laboratory were included in the study. Samples were collected using sterile swabs and prepared for microscopic examination with 20% potassium hydroxide (KOH). For culture, Sabouraud dextrose agar containing 0.5 grams of chloramphenicol (Condalab, Spain) was used. Species identification was performed using CHROM agar Candida medium (Himedia, India). The drug susceptibility of all isolated species was evaluated using the broth microdilution method. This test was conducted following the Clinical and Laboratory Standards Institute (CLSI) document M27-A3 guidelines (Clinical and Laboratory Standards Institute, 2008). Minimum inhibitory concentrations (MICs) of the antifungal agents Itraconazole, Fluconazole, Caspofungin, Voriconazole, and Nystatin were determined for each species.

Results

Among the patients , the isolates included 24 Candida albicans, 4 Candida glabrata, 2 Candida tropicalis, 1 Candida krusei, and 1 Candida parapsilosis. The MIC50/MIC90 values for the identified fungi were approximately: Itraconazole: 0.50/1, 0.5/1, 0.250/0.500, 0.125/1, 0.250/0.250 µg/mL - Fluconazole: 0.50/4, 32/64, 0.250/0.500, 32/64, 0.125/0.25 µg/mL - Caspofungin: 0.032/0.132, 0.125/0.125, 0.032/0.064, 0.064/0.132, 0.032/0.032 µg/mL - Voriconazole: 0.125/0.250, 0.132/0.250, 0.032/0.125, 0.125/0.250, 0.032/0.064 µg/mL - Nystatin: 0.58/1.15, 0.29/1.15, 0.58/0.58, 0.29/1.15, 0.280/0.560 µg/mL

Conclusion

Candida has been identified as a significant cause of fungal vaginitis in women, with Candida albicans being the predominant species responsible for the infection. However, the emergence of non-albicans species, such as Candida glabrata, has led to an increase in drug resistance. Therefore, accurately identifying the fungal species isolated from patients and determining their drug susceptibility profiles are crucial for the rapid and effective treatment of the disease. Caspofungin and Itraconazole are recommended treatments based on calculated MICs. Nonetheless, performing drug susceptibility testing in the laboratory and identifying the specific Candida species remain essential for guiding therapy. Monitoring drug resistance patterns and the spectrum of Candida species provides valuable information for healthcare management and improves patient outcomes.

Keywords

Candida, candidiasis, Microdilution broth, CLSI

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Authors:

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Headline: Anatomical Pathology

Headline Title: Gastrointestinal/hepatobiliary Pathology

Code: A031025005801

Title: Investigating Histopathological Findings of the Esophageal Mucosa in Patients Suspected of Having Barrett's Esophagus at Endoscopic Evaluation

Sender Name: Shiva Didehban

Introduction

Barrett's esophagus is an important histopathological change in the esophagus that can progress to adenocarcinoma. A definitive diagnosis of Barrett's esophagus requires histopathological examination of biopsy specimens; however, challenges remain in correlating endoscopic and histopathological findings. The aim of this study was to investigate the histopathological features of esophageal mucosal biopsy samples in patients with suspected Barrett's esophagus on endoscopy.

Material & Methods

This retrospective cross-sectional study was conducted in 2024 on 76 patients who were referred to the pathology department of Afzalipour Hospital in Kerman and had been examined for histopathological findings of the esophageal mucosa following an endoscopic diagnosis suspicious for Barrett's esophagus during 2019–2023. Slides stained with hematoxylin and eosin were reviewed by two pathologists who were blinded to the endoscopic findings.

Results

The mean age of the patients was 47.04 ± 16.26 years; 56.6% were male and 43.4% were female. The most common clinical manifestations were abdominal pain (43.4%), dyspepsia (35.5%), and dysphagia (21.1%). Among the 76 patients with suspected Barrett's esophagus on endoscopy, only 20 (26.3%) were confirmed by pathological examination. The most frequent histopathological diagnoses were mild esophagitis (39.5%) and Barrett's esophagus (26.3%). Metaplasia was observed in 25.1% of patients, and metaplasia with low-grade dysplasia in 1.3%. No significant associations were found between histopathological diagnosis and age ($P = 0.050$), gender ($P = 0.082$), or clinical manifestations ($P = 0.687$). The kappa coefficient of agreement between the two pathologists was 0.826, indicating excellent inter-observer reliability.

Conclusion

The findings regarding the low positive predictive value of endoscopy in the diagnosis of Barrett's esophagus highlight the importance of adequate sampling from suspicious areas and careful

histopathological examination. Furthermore, the absence of a significant relationship between clinical manifestations and histopathological diagnosis indicates that clinical symptoms alone cannot serve as a definitive predictor of Barrett's esophagus, underscoring the importance of endoscopic screening in high-risk patients regardless of symptom type.

Keywords

Barrett'sEsophagus Endoscopy Histopathology

Authors:

(Dr Elham Jafari - author) (Shiva Didehban - corresponding-author) (Batool Labibi - author)

Headline: Clinical Pathology

Headline Title: Digital Pathology

Code: A0310254329801

Title: Low Prevalence of Prior Polypectomy in Colon Cancer Patients: A Cross-sectional Study and the Need for Screening Development in Iran

Sender Name: Khatere Akbari

Introduction

Colorectal cancer is one of the most common cancers worldwide, primarily originating from adenomatous polyps. Despite prevention potential through early detection and polyp removal, insufficient information exists regarding prior polypectomy frequency in Iranian colon cancer patients. This study investigated the frequency of prior polypectomy and polyp co-occurrence in colon cancer patients.

Material & Methods

This cross-sectional descriptive study included 260 colon cancer patients in Kerman teaching hospitals during 2020-2024. Data were collected through medical record review and telephone contact. Demographic variables, colonoscopy history, polypectomy, and clinical characteristics were examined. Statistical analysis used SPSS version 27.

Results

Mean patient age was 58.31±15.36 years, with 59.6% males and 40.4% females. Only 23 patients (9.1%) had prior colonoscopy history. Among these, 14 patients (5.5%) had polypectomy history, including 13 cases (5.1%) of adenomatous polyps and one case (0.4%) of hyperplastic polyps. Additionally, 22 patients (8.2%) had concurrent polyps at cancer diagnosis. A significant association was observed between positive family cancer history and polyp absence (p=0.017). Other demographic and clinical variables showed no significant association with polyp presence.

Conclusion

The very low frequency of prior polypectomy (5.5%) and screening colonoscopy (9.1%) in colon cancer patients indicates a significant gap in cancer care systems. These findings highlight the necessity for comprehensive screening programs, increased public awareness, and improved diagnostic service access. National colorectal cancer screening program implementation is essential for reducing disease burden in Iran.

Keywords

Colon cancer, Polypectomy, Colonoscopy, Screening

Authors:

(Khatere Akbari - author) (Elham Jaffari - author) (Saeed Afsharmanesh - corresponding-author)

Headline: Anatomical Pathology

Headline Title: Head And Neck Pathology

Code: A031025005201

Title: Evaluation of Stathmin Expression in Different Oral Squamous Lesions: A Retrospective Cross-Sectional Study

Sender Name: Fatemeh Amirmoezi

Introduction

Stathmin is a phosphoprotein involved in the functions of proliferation, differentiation and cell migration through microtubules, and its increased expression has been reported in some tumors. The purpose of this study was to compare the level of expression of stathmin in different oral lesions.

Material & Methods

In this cross-sectional study, the expression of stathmin was investigated in 98 samples of oral lesions (between 2010 and 2017) available in the archive of pathology department of Shiraz Dental School including 24 cases of squamous cell carcinoma, 17 cases of epithelial dysplasia, 15 cases of lichen planus with dysplasia, 15 cases of lichen planus without dysplasia, and 27 oral hyperkeratosis by the means of immunohistochemistry.

Results

The comparisons showed that the level of stathmin expression in the central/suprabasal epithelial layer in oral squamous cell carcinoma was higher than lichen planus (p value = 0.044), in epithelial dysplasia was higher than hyperkeratosis and lichen planus without dysplasia (p value = 0.002), in lichen planus with dysplasia was higher than hyperkeratosis and lichen planus without dysplasia (p value <0.001).

Conclusion

Phosphoprotein stathmin is more expressed in oral squamous cell carcinoma, epithelial dysplasia and lichen planus with dysplasia than in other lesions that have less dysplastic features. Identifying the signal transmission system of this molecule and its molecular inhibitors can be promising in inhibiting tumor growth and therapeutic targets.

Keywords

Stathmin-Oral squamous cell carcinoma-Epithelial dysplasia

Authors:

(Razieh Zare - author) (Pegah Esmailizadeh - author) (Fatemeh Amirmoezi - corresponding-author)

Headline: Anatomical Pathology

Headline Title: Cardiovascular Pathology

Code: A031025007601

Title: Carotid body tumor associated with complete heart block: A rare case report with long-term follow-up

Sender Name: Mohsen Mohebi-nia

Introduction

Carotid body tumor (CBT), or glomus tumor, is the most common paraganglioma of the head and neck, originating from neural crest-derived chemoreceptor cells. These rare neoplasms, accounting for only 0.6 % of head and neck tumors, are often associated with chronic hypoxemia, such as in chronic obstructive pulmonary disease or high-altitude living, and exhibit a female predominance, typically presenting between ages 30 and 40 [1,2]. While most CBTs are benign, 2–8 % demonstrate malignant potential, and a subset may secrete catecholamines, complicating their clinical management [3,4]. The development of CBTs is influenced by genetic predisposition, environmental hypoxia, and hormonal factors, particularly estrogen, which has been linked to tumor growth acceleration [5].

Material & Methods

The patient underwent surgery on May 19, 2024, after precise localization of the CBT via CT angiography. The surgical approach was chosen based on the Shamblin type II classification, indicating partial encasement of the carotid arteries. Given the tumor's proximity to critical neurovascular structures, including the vagus and hypoglossal nerves, an open surgical approach was deemed the most appropriate to ensure complete resection while minimizing complications.

Following general anesthesia induction, the patient was positioned supine with the neck extended and rotated to the right. An oblique incision was made parallel to the left sternocleidomastoid muscle, extending from the mastoid process to the sternal notch. After skin incision and platysma dissection, the carotid sheath was carefully exposed. The common carotid artery and its bifurcation into the internal and external carotid

arteries were identified. The tumor, measuring 30 × 50 mm, was observed at the carotid bifurcation and meticulously dissected from surrounding tissues.

Results

This case highlights the rare coexistence of a CBT and congenital CHB, which holds significant clinical implications. CBTs, due to their anatomical proximity to the carotid sinus and vagus nerve, can exert mechanical pressure or cause neural invasion, leading to abnormal vagal stimulation. This can result in cardiovascular complications such as bradycardia, hypotension, or disturbances in cardiac conduction, particularly in patients with pre-existing cardiac conditions like CHB [4,6,7]. This case underscores the importance of multidisciplinary collaboration between vascular surgeons, cardiologists, and anesthesiologists in managing such complex cases. The preoperative placement of an external pacemaker and continuous hemodynamic monitoring were critical in mitigating risks during surgery. The successful outcome demonstrates that with meticulous planning, surgical intervention can be safely performed even in patients with significant cardiac comorbidities.

Conclusion

This case report demonstrates that surgical resection of a CBT can be safely performed in patients with congenital CHB, provided that appropriate precautions are taken. The improvement in parasympathetic tone post-surgery highlights the potential cardiovascular benefits of tumor removal, while the 1-year follow-up data confirm the stability of cardiac function and the absence of tumor recurrence. This case underscores the importance of meticulous surgical planning as well as multidisciplinary collaboration in achieving optimal outcomes for complex cases.

Keywords

Complete heart block Paraganglioma

Authors:

(Mohsen Mohebi-nia - author)

Headline: Anatomical Pathology

Headline Title: Genitourinary Pathology

Code: A0310254329601

Title: Interobserver Agreement in Histopathological Grading of Urothelial Tumors in Bladder Biopsy Specimens: A Cross-Sectional Study at Bahonar University Hospital (2020-2021)

Sender Name: Milad Pourtaheri

Introduction

Tumor grading plays a crucial role in determining treatment strategies, predicting disease progression, and the likelihood of recurrence. In addition to tumor grade, factors such as tumor stage and the extent of invasion into the lamina propria, detrusor muscle, and vascular structures significantly impact patient treatment outcomes. Given the limited studies on inter-pathologist agreement in bladder cancer grading in Iran, this research was designed and conducted to fill this gap and evaluate the level of agreement to improve diagnostic and therapeutic methods.

Material & Methods

This descriptive-analytical cross-sectional study was performed on neoplastic bladder biopsy samples at Shahid Bahonar Hospital between 2020 and 2021. All samples with available pathology slides and blocks, and complete demographic information were included in the study. Two pathologists independently reviewed the slides without knowing each other's opinions, and determined the tumor grade based on the WHO 2004/2016 system, the tumor stage based on TNM 2017, and invasion into the lamina propria, muscle, and vessels. The Kappa coefficient was used to assess the level of agreement between the pathologists.

Results

The results showed that the agreement rate between pathologists in tumor grading was 85.5% and significant (K=0.70). The most significant change was related to tumor stage; re-examination of the samples reported an increase in tumor stage in 18 cases (6.8%), and the agreement rate in tumor stage was 58.5% and K=0.23, indicating poor to moderate agreement in determining the stage of bladder tumors. In this study, it was observed that with increasing age, the agreement rate in grading decreased from excellent to moderate, and the agreement rate in grading was higher in men than in women. It was also shown that the greatest difference was related to the identification of invasion into the lamina propria.

Conclusion

Reviewing urothelial bladder samples showed good agreement between pathologists in grading and vascular invasion, and moderate agreement in muscle invasion, but in some parameters such as tumor staging and lamina propria invasion, disagreements were higher. These results are consistent with previous studies. Therefore, re-examination of bladder biopsy samples, simultaneous grading by two pathologists with a multi-head microscope, and the use of serial sections, especially in cases where treatment decisions are critical, are recommended to increase diagnostic accuracy and prevent inappropriate treatment decisions.

Keywords

Bladder-Cancer, Urothelial-Tumor, Pathology, Biopsy, agreement

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Headline: Anatomical Pathology

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Headline Title: Head And Neck Pathology

Code: A0310251242602

Title: Evaluation of mucous staining pattern in salivary gland tumors, using both immunohistochemistry and histochemical stains

Sender Name: Erfaneh Amini

Introduction

Salivary gland tumors represent a diverse group of neoplasms with varying morphology and clinical behavior, often posing diagnostic challenges. Among their defining features, mucins play a crucial role in tumor characterization. Based on chemical composition, mucins are classified into neutral, acidic (sialomucins and sulfomucins), or mixed types, each with distinct diagnostic value. Histochemical stains such as Periodic Acid–Schiff (PAS), Alcian Blue, and mucicarmine enable differentiation of mucin subtypes, while immunohistochemical markers including MUC1, MUC2, MUC4, and MUC5B/5AC provide further molecular insight into mucin expression profiles associated with specific tumor entities.Mucin staining patterns are particularly informative in differentiating between mucoepidermoid carcinoma, adenoid cystic carcinoma, polymorphous adenocarcinoma, and other SGTs, and aberrant mucin expression has been linked with recurrence, invasion, and prognosis.

Material & Methods

A variety of formalin-fixed, paraffin-embedded specimens of salivary gland tumors were retrieved from the pathology archives. Representative sections were stained with conventional hematoxylin and eosin (H&E) for morphological assessment.

Histochemical evaluation included Periodic Acid–Schiff (PAS), Alcian Blue (pH 2.5), mucicarmine, and high iron diamine–Alcian Blue (HID–AB) to differentiate neutral, acidic (sialomucin, sulfomucin), and mixed mucins.

Immunohistochemistry (IHC) was performed using antibodies against MUC1, MUC2, MUC4, and MUC5B/5AC according to standardized protocols, with appropriate positive and negative controls. Expression was semi-quantitatively scored based on intensity and percentage of positive tumor cells.

All stained slides were scanned using a Whole Slide Imaging (WSI) system at ×40 magnification. Digital evaluation was performed using annotation and image analysis software to assess mucin distribution, staining intensity, and reproducibility across cases. Comparative analysis was carried out between histochemical and IHC profiles, and correlations were made with tumor subtype and clinicopathologic parameters.

Results

Descriptive analysis was performed on mucous staining patterns in salivary gland tumors using both histochemical and immunohistochemical methods, supported by WSI-based digital evaluation. Correlating staining profiles with tumor subtypes may refine diagnostic accuracy and contribute to a deeper

understanding of the biological behavior of these neoplasms. To enhance accuracy and reproducibility, Whole Slide Imaging (WSI) was integrated into the evaluation process, allowing digital annotation and comparative assessment of mucous staining patterns across cases. This digital approach not only improved standardization but also highlighted the potential of WSI as an adjunct in future histopathological and research workflows.

Conclusion

Evaluation of mucous staining patterns using both histochemical and immunohistochemical techniques provides valuable diagnostic and prognostic insight into salivary gland tumors. Histochemical stains remain effective for distinguishing neutral, acidic, and mixed mucins, while immunohistochemical markers refine tumor characterization through subtype-specific expression profiles. The integration of Whole Slide Imaging (WSI) enhanced reproducibility and allowed objective digital assessment, underscoring its potential as a modern adjunct to routine pathology. Overall, correlating mucin expression patterns with tumor subtypes contributes to improved diagnostic accuracy and offers a deeper understanding of the biological behavior of these neoplasms.

Keywords

Salivaryglandtumors, mucin, histochemistry, immunohistochemistry, digitalpathology

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Headline: Clinical Pathology

Headline Title: Clinical Chemistry/Immunology

Code: A0310251139303

Title: Twin Pregnancy with Extreme TSH Elevation Due to Coexistence of Macro-TSH and True Hypothyroidism: A Six-Year Follow-Up Case Report

Sender Name: Sareh Salarinejad

Introduction

Thyroid disorders are among the most common endocrine conditions complicating pregnancy and, if not properly recognized, may result in adverse maternal and neonatal outcomes. Interpretation of thyroid function tests can be particularly challenging in rare cases of macro-thyrotropin (macro-TSH), an immunoglobulin-bound form of TSH that leads to spuriously elevated values on routine assays. Only a few cases of macro-TSH in pregnancy have been documented, and most describe isolated macro-TSH without true hypothyroidism. Here, we report a unique case of twin pregnancy with extremely high TSH levels due to the coexistence of macro-TSH and genuine hypothyroidism, and we provide long-term follow-up of both children.

Material & Methods

A 30-year-old woman (G2P1) conceived twins spontaneously and was referred in early gestation with extreme thyroid function abnormalities. Laboratory results showed: TSH 828.8 mIU/L, T4 1 µg/dL, T3 <0.195 ng/mL, free TSH 71.2 mIU/L, anti-TPO 18.9 IU/mL. Such disproportionally high TSH raised suspicion of assay interference. To address this, macro-TSH was measured by polyethylene glycol (PEG) precipitation, confirming a high level of 757.5 mIU/L. Based on reduced T4 and T3, the patient was diagnosed with true hypothyroidism coexisting with macro-TSH. She was started on three tablets of levothyroxine daily, and thyroid function was monitored every 3–4 weeks. Throughout gestation, values stabilized under treatment. Comprehensive prenatal screening, including first- and second-trimester ultrasounds and biochemical markers, demonstrated normal fetal development. Obstetric care was provided collaboratively by endocrinology and maternal-fetal medicine teams, with emphasis on avoiding unnecessary intervention. The patient was followed up until delivery, and both infants underwent postnatal and childhood evaluations.

Results

Despite initial consideration of pregnancy termination due to extreme TSH elevation, careful re-evaluation and identification of macro-TSH allowed continuation of pregnancy with medical management. At 38 weeks, an elective cesarean section was performed, delivering two healthy male neonates with normal Apgar scores and appropriate birth weights. Postnatal assessments revealed no thyroid dysfunction or developmental delay. The children have been followed for six years, showing normal growth curves, intact cognitive development, and no neurodevelopmental deficits. Compared with previously published cases, this is the first twin pregnancy described with macro-TSH, the highest maternal TSH level recorded, and one of the rare instances combining macro-TSH with biochemically confirmed hypothyroidism.

Conclusion

This case highlights the complexity of interpreting thyroid function in pregnancy when extreme TSH elevations are encountered. While macro-TSH is often considered a benign laboratory artifact, coexistence with true hypothyroidism can occur and should not be overlooked. Failure to recognize this dual condition may result in inappropriate recommendations such as pregnancy termination. PEG precipitation remains an essential confirmatory tool when laboratory interference is suspected. Our findings emphasize the importance of multidisciplinary collaboration between endocrinologists and obstetricians, enabling accurate diagnosis, tailored treatment, and avoidance of unnecessary interventions. Furthermore, the six-year follow-up of both twins provides reassuring evidence that appropriate levothyroxine therapy ensures favorable maternal and neonatal outcomes, even in the setting of extraordinary biochemical abnormalities.

Keywords

Macro-TSH Hypothyroidism Pregnancy Twin Levothyroxine

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Headline: Clinical Pathology

Headline Title: Artificial Intelligence In Pathology

Code: A0310254324602

Title: Image-Based Prediction of Microsatellite Instability in Colorectal Cancer Using H&E-Stained Histopathology: A Deep Learning Approach

Sender Name: Anita Khalili

Introduction

Microsatellite instability (MSI) is an important biomarker in colorectal cancer, informing immunotherapy eligibility and hereditary syndrome screening. Traditional MSI detection methods like IHC and PCR are accurate but resource-intensive, limiting their use in low-resource settings. Deep learning offers a non-invasive, scalable alternative by predicting MSI from routine H&E-stained slides. However, limited publicly available datasets and study homogeneity restrict model generalizability. This study aims to develop and validate a deep learning model for MSI prediction using a new, diverse dataset of colorectal cancer images, providing a cost-effective supplement to molecular testing.

Material & Methods

Our proposed method integrates features from two pre-trained convolutional neural networks—DenseNet121 and InceptionV3—fine-tuned on a private dataset comprising over 1,000 digitized H&E-stained colon cancer images with confirmed MSI status. We collected data from a referral pathology laboratory with diverse staining protocols and patient demographics. We applied a Convolutional Block Attention Module (CBAM) to the outputs of each network to enhance feature representation. The attention-weighted features were globally pooled, concatenated, and passed through fully connected layers for final binary classification. Model performance was evaluated using cross-validation metrics such as accuracy, F1-score, and AUC.

Results

The final model achieved a training accuracy of 98.4% and an F1-score of 98.3%. Validation accuracy and F1-score reached 95.1% and 94.9%, respectively. On the test set, the model maintained robust performance, achieving 96.3% accuracy and 96.9% F1-score, confirming its generalizability across heterogeneous data.

Conclusion

While this approach is not intended to replace IHC, it can act as an early triage tool, buying time for patients while awaiting confirmatory IHC results, easing pathologists' workload, and prioritizing resources. It offers a promising, equitable step toward accessible precision oncology, especially in resource-limited settings.

Keywords

MSI, Colon Cancer, Deep Learning

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Headline: Clinical Pathology

Headline Title: Artificial Intelligence In Pathology

Code: A0310254324601

Title: Ensemble Deep Learning for Robust Classification of Colon Histopathology Images Using Attention Mechanisms: A Multicenter Deep Learning Approach

Sender Name: Anita Khalili

Introduction

Colorectal cancer is among the most prevalent and lethal malignancies globally. Histopathological image analysis is essential for accurate diagnosis, yet it is often challenged by limited resources and inter-observer variability. Existing deep learning models are typically trained on homogeneous public datasets that lack the staining, scanning, and demographic diversity encountered in everyday clinical settings, particularly in low-resource environments. These limitations reduce their generalizability and clinical relevance. In this study, we aimed to develop a robust and generalizable deep learning model for binary classification of H&E-stained colon tissue images into adenocarcinoma and normal categories. We combined ensemble learning with a diverse multicenter dataset to enhance real-world applicability.

Material & Methods

We curated a private dataset of over 2,000 H&E-stained colon tissue images from three independent pathology laboratories, capturing variation in staining protocols, microscope cameras, and patient demographics. All images were annotated by expert pathologists. We trained three pre-trained convolutional neural networks—DenseNet121, InceptionV3, and VGG19—separately on a publicly available dataset to capture generalizable features. We then fine-tuned each model on our multicenter dataset. To improve performance, we integrated the three networks using a Squeeze-and-Excitation block to enhance feature attention. The merged outputs were passed through fully connected layers for final binary classification. Preprocessing steps included tile extraction, normalization, and data augmentation. We evaluated model performance using accuracy, precision, recall, and F1-score.

Results

The proposed model achieves superior performance compared to individual models (VGG19, InceptionV3, DenseNet121). On the test set, it reached an accuracy of 0.9912 and F1-score of 0.9921, outperforming VGG19 (acc: 0.9694, F1: 0.9726), InceptionV3 (acc: 0.9475, F1: 0.9502), and DenseNet121 (acc: 0.9825, F1: 0.9843). In training, the proposed model achieved 0.9941 accuracy and 0.9943 F1-score, while VGG19

scored 0.9767 (acc) and 0.9767 (F1), InceptionV3 0.9577 (acc) and 0.9582 (F1), and DenseNet121 0.9912 (acc) and 0.9914 (F1).

Conclusion

Our study highlights that combining transfer learning, ensemble modeling, and multicenter data leads to more accurate and clinically viable diagnostic tools for colorectal cancer detection. The proposed method effectively addresses limitations of traditional models, making it particularly valuable in underrepresented clinical environments.

Keywords

colon cancer, histopathology, deep learning

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Headline: Anatomical Pathology

Headline Title: Gynecology Pathology

Code: A0310251244701

Title: Primary Dedifferentiated Liposarcoma of the Uterine Corpus, Report of an Extremely Rare Tumor

Sender Name: Reyhaneh Safaei

Introduction

Uterine sarcomas are rare malignant neoplasms of the uterus that account for approximately 3-7% of all uterine cancers and comprise 1% of all gynecological malignancies. World Health Organization (WHO) classified uterine sarcomas into two main groups, including mesenchymal and mixed epithelial and mesenchymal tumors. The majority (60–70%) of all uterine sarcomas are leiomyosarcomas. Well-differentiated liposarcoma (WDLPS), dedifferentiated liposarcoma (DDLPS), myxoid liposarcoma, pleomorphic liposarcoma, and myxoid/pleomorphic liposarcoma are the five histologic subtypes. most liposarcomas arise in the deep soft tissue of the extremities, followed by the retroperitoneum and trunk. The present inquiry reports the clinical course of a rare reported case of DDLPS originating from the uterus.

Material & Methods

A 54-year-old female was presented with vaginal

bleeding and a fast-growing lower abdominal mass at the gynecological unit of our Hospital. Six months earlier, the patient had been diagnosed with infiltrating ductal carcinoma of the left breast, who underwent mastectomy, axillary lymph node dissection, and chemoradiotherapy. Bilateral salpingo-oophorectomy and total abdominal hysterectomy were done. On macroscopic examination, a well-defined myometrial intramural fundal mass measuring 12x11x9cm was detected. Microscopic examination of Hematoxylin and Eosin sections of the tumor showed lipoleiomyoma composed of smooth muscle bundles intermixed with scattered patches of mature adipocytes with foci of malignant transformation, consisting of atypical spindle cells with high mitotic activity. Five months later, she was presented with abdominal pain. Core needle biopsy of the tumor was again diagnosed as recurrence of leiomyosarcoma. Microscopic examination manifested high-grade sarcoma composed of atypical spindle cells with frequent bizarre nuclei intermixed with variable-sized adipocytes, uni or multivacuolated lipoblasts and high mitotic activity. Foci of pure high grade spindle cell sarcoma were also obvious. On immunohistochemical study, the tumor cells were sparsely stained positive with desmin, H-caldesmon, ER/PR, and diffuse strong staining with human murine double minute 2 (MDM2). No immune reaction with smooth muscle markers was noted in the pure spindle cell component . Also, human melanoma black-45 (HMB-45) was negative .

Results

Histopathological examination of the recurrent tumor revealed transformation to dedifferentiated liposarcoma. WDLS and DDLS together constitute the largest subgroup of liposarcomas. Dedifferentiation occurs in approximately 10% of WDLPS cases and is determined as the transition to a non-lipogenic sarcoma of varying histological grade. DDLP is one of the variants of liposarcoma with a worse prognosis with high rate of recurrence and metastasis. The present study reported the first known case of primary dedifferentiated liposarcoma deriving from lipoleiomyoma in the uterine corpus. Pleomorphic, myxoid, and well-differentiated liposarcoma have been described, previously.

Conclusion

Uterine lipomatous tumors are uncommon neoplasms. There are different opinions and various theories about the origin of uterine adipose-derived tumors, but the histogenesis remains to be a mystery. Liposarcoma originating from the uterus is extremely rare. DDLPS is one of the subtypes of liposarcoma which can be diagnosed as the primary uterine tumor after excluding metastatic or locally advanced soft tissue sarcoma.

Keywords

Primary Dedifferentiated Liposarcoma _Uterine Corpus

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Headline: Anatomical Pathology

Headline Title: Breast Pathology

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Code: A0310251206001

Title: Association of CK 5/6 immunostaining patterns with clinicipathological characteristics in Triple Negative Breast Cancer

Sender Name: Mohammad Armin Javdan

Introduction

Triple-negative breast cancer (TNBC) represents an aggressive breast cancer subtype with limited therapeutic options. Cytokeratin 5/6 (CK5/6) is a basal cell marker that helps identify basal-like breast cancers, which largely overlap with TNBC and may influence treatment strategies and prognosis. This study aimed to assess the prevalence of CK5/6 expression in TNBC patients and investigate its potential associations with various clinicopathological factors.

Material & Methods

A retrospective cross-sectional study analyzed 54 TNBC tissue samples from female patients at Kerman University of Medical Sciences (2013-2023). Immunohistochemical staining and microscopic evaluation were performed to assess CK5/6 expression. Various clinicopathological parameters were assessed including age, tumor grade, lymphovascular invasion, lymphocyte host response, lymph node status, Ki-67 index, tumor necrosis, DCIS presence, and microcalcifications.

Results

CK5/6 expression was positive in 63.0% of cases (29.6% moderate, 33.3% strong staining). Patients' mean age was 48.5 years (±12.3). While trends suggested associations between strong CK5/6 expression and younger age, higher tumor grade, increased lymphovascular invasion, and elevated Ki-67 index, no statistically significant correlations were found between CK5/6 expression and any clinicopathological parameters examined ($p>0.05$).

Conclusion

Despite high CK5/6 expression prevalence in Iranian TNBC patients, the lack of significant associations with clinicopathological features suggests CK5/6 expression alone may not strongly predict tumor behavior. Further large-scale studies integrating additional molecular markers are needed to better understand CK5/6's role in TNBC prognosis and treatment implications.

Keywords

Triple negative , CK 5/6

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Headline Title: Clinical Microbiology

Code: A0310254328201

Title: Alterations of oral microbiome in oral potentially malignant disorders: A systematic review

Sender Name: Sajad Torki

Introduction

Oral potentially malignant disorders (OPMDs), including conditions such as Oral lichen planus, Oral leukoplakia, and Oral submucous fibrosis. These disorders have a significant risk for malignant transformation. New evidence suggests the oral microbiome as an important factor in the pathogenesis of these disorders and their progression to oral cancer. This systematic review aims to evaluate the dysbiosis of the oral microbiome in patients with OPMDs and to explore its potential association with dysplastic changes and malignancy.

Material & Methods

A comprehensive literature search was conducted across several databases, including PubMed, Scopus, Web of Science, and Google Scholar. Studies published until August 2025 focusing on the oral microbiome in OPMD patients were included. Only human studies with a definitive diagnosis of OPMDs were considered. Data extraction was performed by two independent reviewers, and the Newcastle-Ottawa Scale was used to assess the quality of included studies.

Results

A total of 56 studies were included. The most prevalent microbial phyla identified in OPMD patients included Firmicutes, Proteobacteria, and Fusobacteria. There were significant changes in microbial diversity compared to healthy controls. Several studies reported an increase in pathogenic species such as Porphyromonas and Prevotella, while commensal bacteria like Streptococcus were less abundant. Dysbiosis was particularly observed in subtypes of oral lichen planus and leukoplakia.

Conclusion

The oral microbiome exhibits significant dysbiosis in OPMD patients, with shifts towards pathogenic microbial communities. This dysbiosis may play a crucial role in the progression of these disorders and their potential transformation into oral cancer. Further studies are needed to evaluate the causal relationship between microbial alterations and OPMD malignancy.

Keywords

Microbiota OPMD Dysplasia

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Headline: Clinical Pathology

Headline Title: Clinical Chemistry/Immunology

Code: A0310251008602

Title: The Role and Importance of Procalcitonin (PCT) Testing in Rational Antibiotic Prescribing and Antibiotic Programs Stewardship

Sender Name: Aysan Nozheh

Introduction

Antibiotic resistance is a critical global health issue, primarily driven by inappropriate antibiotic prescribing. Identifying reliable biomarkers to guide antibiotic use is essential to combat this challenge. Procalcitonin (PCT) testing has emerged as a promising tool for differentiating bacterial infections from non-bacterial conditions and supporting antibiotic stewardship programs (ASPs).

Material & Methods

This literature review systematically evaluates evidence from randomized controlled trials, observational studies, and real-world clinical data to assess the clinical utility of PCT testing in guiding antibiotic prescribing decisions.

Results

Findings indicate that PCT testing effectively reduces unnecessary antibiotic prescriptions and optimizes treatment duration, thereby improving patient outcomes. Additionally, integrating PCT testing into clinical practice demonstrates economic benefits by lowering healthcare costs related to antibiotic overuse and extended hospital stays. However, challenges such as interpretation difficulties, false-positive/negative results, and implementation barriers remain.

Conclusion

Incorporating PCT testing into antibiotic stewardship strategies offers a promising approach to enhance prescribing accuracy, reduce antibiotic resistance risks, and improve patient care quality. Future research should focus on refining clinical guidelines, expanding applicability across diverse patient populations, and addressing practical challenges to facilitate widespread adoption of PCT testing in routine clinical settings.

Keywords

Procalcitonin, Antibiotic Stewardship, AntibioticResistance, AntimicrobialTherapy

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Headline: Anatomical Pathology

Headline Title: Dermatopathology

Code: A0310251229802

Title: Hyperkeratosis Lenticularis Perstans: A Rare Case Report and Review of Diagnostic Challenges

Sender Name: Farzaneh Farshidi

Introduction

Hyperkeratosis lenticularis perstans (HLP), or Flegel's disease, is a rare chronic keratinization disorder usually affecting the lower extremities in middle-aged adults. We present a 46-year-old woman with pruritic, keratotic papules on the dorsal feet, resistant to corticosteroid therapy. Histopathology showed compact hyperkeratosis, parakeratosis, basal vacuolization, and lymphohistiocytic infiltrate. This case emphasizes the diagnostic challenges and importance of clinicopathologic correlation.

Material & Methods

A 46-year-old woman from Bandar Abbas, Iran, presented to the dermatology clinic with a six-month history of gradually progressive, pruritic, brownish papules on the dorsal surfaces of both feet. The lesions were firm, slightly raised, and measured approximately 2–4 mm in diameter. The patient was otherwise healthy, denied systemic symptoms, and reported no personal or family history of dermatologic, autoimmune, endocrine, or malignant disorders.

She had initially been treated with topical corticosteroids, but no clinical improvement was observed. Over time, the lesions increased in both number and density. Dermatologic examination confirmed multiple discrete, hyperkeratotic papules strictly localized to the dorsal feet (Figure 1).

A 0.5 × 0.4 cm punch biopsy was taken from one of the lesions. Histopathologic evaluation demonstrated well-demarcated compact hyperkeratosis with focal parakeratosis (Figure 2), basal cell vacuolization, and a mild lymphohistiocytic infiltrate within the papillary dermis (Figure 3). No evidence of dysplasia or malignancy was identified. Correlating the clinical features with histological findings, a diagnosis of hyperkeratosis lenticularis perstans was established.

Results

This case highlights the diagnostic and therapeutic difficulties posed by hyperkeratosis lenticularis perstans, a rare yet distinctive dermatosis. The patient presented with persistent, pruritic, keratotic papules resistant to corticosteroid therapy, and the characteristic histopathologic findings confirmed the diagnosis. Because of its rarity and the broad spectrum of potential clinical mimickers, early biopsy and histological assessment are essential for establishing an accurate diagnosis. In addition, the limited success of standard therapies

emphasizes the importance of tailored treatment approaches and continued investigation into disease mechanisms and targeted interventions. By reporting this case, we aim to broaden awareness of the clinical and microscopic features of HLP and to promote timely recognition, which can reduce unnecessary procedures and prolonged morbidity.

Conclusion

Hyperkeratosis lenticularis perstans (HLP) is a rare keratinization disorder that often mimics other dermatoses, leading to delayed diagnosis. Dermoscopy and histopathology remain essential for accurate identification, with classic features including compact hyperkeratosis, parakeratosis, basal cell vacuolization, and a lichenoid lymphocytic infiltrate. While pathogenesis may involve keratinization defects, immune dysregulation, and SPTLC1 gene variants, therapeutic options remain limited, with frequent resistance to corticosteroids and relapses after treatment discontinuation. Our case highlights the importance of early biopsy, clinicopathologic correlation, and increased awareness among clinicians and pathologists to ensure timely diagnosis and consideration of alternative therapeutic strategies in persistent lesions.

Keywords

Hyperkeratosis lenticularis perstans Flegel’s disease

Authors:

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Headline: Anatomical Pathology

Headline Title: Hematopathology

Code: A0310251229801

Title: Evaluation of the Prognostic Value of P53 Immunohistochemistry Results in the Overall Survival of Patients with Acute Myeloid Leukemia in Shahid Mohammadi Hospital of Bandar Abbas (2017–2023)

Sender Name: Farzaneh Farshidi

Introduction

Acute myeloid leukemia (AML) is a genetically heterogeneous malignancy with variable clinical outcomes. While TP53 gene mutations are established poor prognostic markers, the significance of p53 protein expression assessed by immunohistochemistry (IHC) remains controversial. This study aimed to evaluate the prognostic value of p53 IHC expression in AML patients and its association with survival.

Material & Methods

A retrospective cohort study was conducted on 64 AML patients diagnosed between 2018 and 2023 at Shahid Mohammadi Hospital, Bandar Abbas. Bone marrow biopsy specimens were analyzed for p53 expression using IHC and classified into four groups based on staining intensity and the number of positive nuclei per high-power field. Clinical and demographic data were collected, and overall survival (OS) was analyzed using Kaplan–Meier and Cox regression methods.

Results

The median OS was 8 months. Higher OS was observed in female patients (15 vs. 6 months; $p<0.05$), patients aged 18–50 years (10 vs. 6 months; $p<0.05$), and those with AML-M3 subtype (36 vs. 6 months; $p<0.001$). Elevated p53 expression (Groups 2 and 3) was significantly associated with poorer OS (median: 2 months; $p<0.01$). Multivariate Cox analysis confirmed high p53 expression as an independent predictor of poor prognosis (HR > 2; $p<0.05$).

Conclusion

High p53 protein accumulation detected by IHC is a strong negative prognostic indicator in AML. p53 IHC can serve as a rapid and cost-effective prognostic tool, particularly in resource-limited settings lacking access to molecular diagnostics.

Keywords

AML TP53 mutation immunohistochemistry survival

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Headline: Clinical Pathology

Headline Title: Hematology/Coagulation

Code: A0310251139301

Title: Acquired Hemophilia A Following Off-Label Intramuscular Injections of nutrients for weight loss: A Rare Case Report and Expanded Comparison with Published Cases of other causes

Sender Name: Sareh Salarinejad

Introduction

Acquired hemophilia A (AHA), a rare and potentially fatal bleeding disorder, is characterized by autoantibodies against factor VIII (FVIII), which result in severe acquired deficiency despite normal production. In contrast with congenital hemophilia, it develops in patients with no previous bleeding history, often middle-aged or elderly, who start with diffuse skin, mucosa, or muscular bleeding; hemarthrosis rarely occurs. Incidence is 0.5–1.5/million/year. Associations are autoimmune disorders,

malignancy, the postpartum period and drugs, the remaining (up to 50%) being idiopathic. Late diagnosis is associated with the high rate of morbidity and mortality; hence early suspicion is important. Here we report on the unique case of AHA occurring in the setting of 22 daily intramuscular nutrient injections for weight loss and compare its presentation and rapid remission to previously published cases of autoimmune-, malignancy-, postpartum-, and idiopathic-mediated AHA.

Material & Methods

A 45-year-old woman with hypothyroidism (on levothyroxine) and one prior uncomplicated pregnancy received daily intramuscular injections of selenium, chromium, tocopherol, biotin, dexpanthenol, inositol, linoleic acid, and choline as part of a weight-loss regimen, leading to 5 kg weight reduction in 22 days. After day 20, she developed muscle cramps followed by extensive bruising and hematomas. BAT score was 5. Laboratory evaluation: prolonged aPTT 74 s (control 30), partial correction with mixing (40 s), factor VIII activity 1.7%, inhibitor 50 BU. PT was normal. CBC showed mild anemia (Hb 11.6 g/dL, RBC 3.66×10^{12}/L), leukocytosis (WBC 12×10^{9}/L, 74% neutrophils), and normal platelets (381×10^{9}/L). Imaging: abdominal US revealed fatty liver grade 1–2; soft tissue US demonstrated hematomas without abscess or joint effusion; chest X-ray was normal. Diagnosis: acquired hemophilia A. Treatment: recombinant factor VIII replacement plus immunosuppression with prednisolone 75 mg/day tapered to 25 mg, rituximab (6 doses, twice weekly), and cyclosporine 100 mg/day. For context, we reviewed published AHA cases in different clinical settings: autoimmune (thyroiditis, lupus, rheumatoid arthritis), malignancy-associated, postpartum, drug-induced, and idiopathic forms. Clinical features, lab findings, inhibitor titers, therapies (steroid alone, steroid + cyclophosphamide, rituximab-based), time to remission, relapse, and outcomes were compared with our patient.

Results

aPTT was restored within the first week of treatment, development of new hematomas was halted and ecchymoses started to disappear, reaching a complete remission at week three. Hemoglobin remained stable without transfusion. There was no joint or mucosal bleeding. Her clinical presentation (profound cutaneous and intramuscular bleeding, but no hemarthrosis) appeared typical in relation to published cases. Remission was achieved, however, earlier than the median reported in the literature: case series quote inhibitor eradication in 4-8 weeks with steroid, combination approach, notably rituximab, reducing time to remission. In AHA bot cancer and post-partum response is poor and relapses frequent, whereas in the autoimmune or idiopathic presentation resolution may take months. The swift and remarkable response of our patient suggest the effectiveness of intensive multiagent immunosuppression, in line with the newly reported literature on rituximab-containing regimens in high-titer AHA.

Conclusion

This case illustrates acquired hemophilia A temporally linked to daily off-label intramuscular weight-loss injections. Although causality cannot be proven, the close temporal association and absence of other triggers suggest these injections may have precipitated autoimmunity. Compared with literature, our patient achieved remission within three weeks—faster than the 4–8 weeks often reported with steroids alone—and similar to cases treated with rituximab-based regimens. While malignancy- and postpartum-related AHA show higher relapse rates, our patient remained in remission, resembling autoimmune or idiopathic profiles.

This highlights the need for clinicians to suspect AHA in patients with unexplained bleeding and isolated prolonged aPTT, and to consider early aggressive immunosuppression with corticosteroids, rituximab, and cyclosporine to achieve rapid remission and improved outcomes.

Keywords

Acquired hemophilia Factor VIII inhibitor

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Headline: Anatomical Pathology

Headline Title: Gynecology Pathology

Code: A0310251044401

Title: Myoepithelioma-like tumor of the vulva and its immunoreactivity with immunohistochemistry markers; a case report

Sender Name: Shabnam Mashhadi

Introduction

Myoepithelial-like tumors of the vulva constitute a recently recognized distinct entity in literature.

Material & Methods

immunohistochemical (IHC) and molecular profiles differentiate them from myoepithelial tumors of soft tissue.

Results

In this report, we describe a similar case and compare its immunohistochemical features with those of soft tissue myoepithelial tumors.

Conclusion

Based on these findings, we propose an appropriate IHC panel to aid in accurate diagnosis.

Keywords

Myoepithelioma-like tumor, mons pubis

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Headline: Anatomical Pathology

27th ANNUAL CONGRESS & 10th International Congress of PATHOLOGY & LABORATORY MEDICINE
15th Meeting of the Iranian Division of International Academy of Pathology (IAP)
بیست و هفتمین همایش سالانه و دهمین همایش بین‌المللی آسیب‌شناسی و طب آزمایشگاه
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25-28 November 2025 Iranmall, Tehran, Iran
۴-۷ آذر ۱۴۰۴ مرکز نمایشگاه و همایش بین‌المللی ایران‌مال

Headline Title: Nephropathology

Code: A0310251200604

Title: Wilms' Tumor in Early Adulthood: A Diagnostic Challenge in the Absence of Pediatric Red Flags

Sender Name: Armin Borhan

Introduction

Wilms' tumor, also known as nephroblastoma, is a rare form of renal malignancy. This neoplasm mainly affects children. It is extremely uncommon in adults. As a result, the diagnosis and treatment of this neoplasm are more challenging due to its unexpected nature outside of pediatric populations. We present a case of an adult woman who was found to have a mass in her right kidney. The mass was subsequently diagnosed as Wilms' tumor.

Material & Methods

A 20-year-old woman was admitted to emergency ward due to severe and complicated viral gastroenteritis. Abdominal ultrasound and CT scan incidentally detected a mass lesion measuring 34 × 27 mm located in the middle portion of the right kidney. Neither signs of invasion into adjacent structures nor metastasis were noted. The patient did not show any typical symptoms of Wilms' tumor, such as flank pain or hematuria. Subsequently, a radical nephrectomy was performed. Histopathological examination and immunohistochemical analysis were conducted. Finally, the diagnosis of Wilms' tumor was confirmed.

Results

The follow-up after the surgery is still ongoing.

Conclusion

In adult patients who don't present with known clinical symptoms, or in those who have imaging features of low-stage renal cell carcinoma (RCC), it is crucial to also consider the possibility of Wilms' tumor in the differential diagnosis. Wilms' tumor can occasionally mimic the radiologic as well as clinical aspects of other, more common kidney tumors. Therefore, careful evaluation and inclusion of this rare neoplasm in the diagnostic workup is mandatory. This approach can also help avoid misdiagnosis. The preferred surgical treatment for unilateral Wilms' tumor is radical nephrectomy.

Keywords

Wilms' Tumor, Adult, Renal Mass

Authors:

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Headline: Anatomical Pathology

Headline Title: Dermatopathology

Code: A0310251200603

Title: A Rare Dilemma in the Cleavage: Case Study of a 16-Year-Old Girl with Intermammary Pilonidal Sinus

Sender Name: Armin Borhan

Introduction

Pilonidal disease is a skin infection that usually develops as a cyst between the buttock cheeks, often near the upper region. Symptoms may include pain, swelling, redness, and occasionally fluid drainage, though fever is rare. Unlike pilonidal sinus cases in most other body areas, intermammary pilonidal sinus is rare but occurs more often in women.

Material & Methods

We describe a 16-year-old hirsute female patient presented with a chronic history of an itchy and painful intermammary lesion with purulent discharge. Clinical examination revealed a discharging pilonidal sinus with multiple pits. Ultrasonographic evaluation identified an 23x14 mm cystic subcutaneous mass. The mass was removed surgically under general anesthesia. A D-shaped incision with a midline shift was utilized, which encompassed all sinus tract openings and leveled the cleft. The microscopic examination of tissue sections revealed hair-bearing skin with a deep sinus containing dense clusters of inflammatory cells and multinucleated giant cells, consistent with the diagnosis of pilonidal sinus.

Results

The patient was discharged on the same day following the surgery, and the postoperative cosmetic outcome was excellent.

Conclusion

Although rare, an intermammary pilonidal sinus can develop in the intermammary region, particularly in young, obese women with excessive body hair. It is important to consider this possibility when there is induration and an abscess in the intermammary region. A D-shaped incision that encompasses all sinus tract openings, along with a midline shift, helps prevent potential recurrences.

Keywords

Pilonidal sinus, Intermammary, D-shaped incision

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Headline: Anatomical Pathology

Headline Title: Digital Pathology

27th ANNUAL CONGRESS & 10th International Congress of PATHOLOGY & LABORATORY MEDICINE
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بیست و هفتمین همایش سالانه و دهمین همایش بین‌المللی آسیب‌شناسی و طب آزمایشگاه
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Code: A0310251242601

Title: Enhancing Head and Neck Pathology Education Through Whole Slide Imaging website: An Innovative Case-Based Teaching Approach

Sender Name: Erfaneh Amini

Introduction

Traditional pathology education often relies on static photomicrographs or limited access to glass slides and limited cases, which restricts dynamic learning. Whole Slide Imaging (WSI) has emerged as a transformative tool, offering interactive, high-resolution digital slides accessible from anywhere. Integrating WSI into head and neck pathology education provides new opportunities for active learning, collaboration, and improved diagnostic training. We aimed to present an innovative educational method using developing website using case-based WSI for teaching head and neck pathology, designed to improve diagnostic accuracy, accessibility, and learner engagement.

Material & Methods

A digital developing archive of head and neck pathology cases was developed using archived specimens from multiple surgical pathology centers. Each case included clinical context, corresponding WSI, and structured short educational video from an expert. Case-based learning was emphasized, with learners encouraged to navigate slides independently, compare findings, and engage in diagnosis process actively. Finally, we ask them to compare their experience of classic and digital method of pathology education according to Likert scoring system.

Results

Learner feedback demonstrated increased engagement, improved ability to recognize histopathological patterns, and higher confidence in formulating differential diagnoses compared to traditional photomicrograph-based methods. The WSI platform enabled repeated practice, remote accessibility, and standardized exposure to complex cases. In addition, the framework offers the potential to establish a shared archive of expert-annotated slides, creating a long-term educational resource for both trainees and specialists.

Conclusion

WSI provides a powerful tool for head and neck pathology education. By combining clinical context, interactive digital slides, and case-based learning, this method enhances diagnostic skills and creates a more dynamic and accessible training environment. The development of expert educational archives further expands opportunities for collaborative, high-quality pathology education worldwide.

Keywords

HeadandNeck Whole Slide Imaging

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Headline: Clinical Pathology

Headline Title: Clinical Chemistry/Immunology

Code: A0310254324501

Title: Cytomegalovirus, CD55, and CD59: Is there a connection? Lessons from clinical laboratory findings

Sender Name: Mohammad Reza Haeri

Cytomegalovirus, CD55, and CD59: Is there a connection? Lessons from clinical laboratory findings

A 45-year-old woman with a weakly positive cytomegalovirus (CMV) test had flow cytometric measurements of CD55 and CD59 (98.7% and 96.1%, respectively). To date, no direct relationship or association between CMV and CD55 or CD59 has been reported. CD55 and CD59 are complement regulatory proteins that play essential roles in protecting cells from complement-mediated lysis. CD55 accelerates the decay of C3 and C5 convertases, while CD59 prevents the formation of the membrane attack complex. These proteins are often measured for detecting Paroxysmal Nocturnal Hemoglobinuria (PNH). PNH is a rare blood disorder caused by acquired mutations in the PIGA gene, which affects glycosylphosphatidylinositol (GPI)-anchored proteins, leading to hemolysis and thrombosis. Two key GPIanchored proteins, CD55 and CD59, normally protect red blood cells from the body's complement system. The absence of these protective proteins in PNH patients results in uncontrolled complement activation, causing destruction of red blood cells (hemolysis). Conversely, CD55 and CD59 are incorporated into virion envelopes during budding, likely protecting them from destruction by the host immune system. Additionally, viral infections can increase the risk for PNH patients, especially those receiving complement inhibitor treatment, as these infections can worsen the condition. Further research is needed to explore possible connections, such as whether CMV infection influences the course or management of PNH, or if PNH patients are more susceptible to CMV.

Authors:

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Headline: Anatomical Pathology

Headline Title: Gastrointestinal/hepatobiliary Pathology

Code: A0310251008601

Title: Mast cell density in gastric cancer and its relation to aggressive behavior

Sender Name: Aysan Nozheh

Introduction

Stomach cancer is a serious health problem worldwide, as it is one of the most common cancers and the fourth leading cause of cancer-related death. Mast cells perform functions in the immunity system and are a type of discriminated myeloid cell. In this study, we evaluated the correlation between tryptase-positive mast cell density with prognostic histopathological findings in gastric cancer.

Material & Methods

The study was conducted as a cross-sectional study, using tissue samples from 40 patients who underwent radical gastrectomy at Sina Hospital between 2022 and 2023. After histopathological examination and determination of tumor histopathological characteristics, the samples were subjected to immunohistochemical staining using a monoclonal antibody against mast cell tryptase.

Results

In this study, the median density of mast cells in tumor tissue was 8/10 high power fields. There was no significant relationship between mast cell density and the number of lymph nodes involved, as well as tumor type, grade, location, and size. Furthermore, there was no significant relationship between mast cell density and tumor vascular invasion or neural invasion.

Conclusion

Mast cells have vital roles in normal immune systems and pathological situations. Mast cell density in tumor tissue might be considered for the prognosis of patients before treatment but the function of mast cells has not been completely explained in gastric cancer and needs confirmation to introduce new target therapy.

Keywords

StomachCancer, MastCellDensity, Prognosis

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