

Surgical Management of Intra-Abdominal Epithelioid Neoplasms

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Received date: February 22, 2024, Manuscript No. IPJN-24-18881; **Editor assigned date:** February 26, 2024, PreQC No. IPJN-24-18881 (PQ); **Reviewed date:** March 11, 2024, QC No. IPJN-24-18881; **Revised date:** March 18, 2024, Manuscript No. IPJN-24-18881 (R); **Published date:** March 25, 2024, DOI: 10.36648/2576-3903.9.1.66

Citation: Reed I (2024) Surgical Management of Intra-Abdominal Epithelioid Neoplasms. J Neoplasm Vol.9 No.1: 66.

Description

The frequency of Pancreatic Cystic Neoplasms (PCNs) ranges from 2% to 45% among typical adults, with variations tied to age and body mass index. PCNs encompass several types, including Serous Cystic Neoplasm (SCN), Solid Pseudopapillary Neoplasm (SPN), Intraductal Papillary Mucinous Neoplasm (IPMN) and Mucinous Cystic Neoplasm (MCN). SCN generally exhibits a low likelihood of malignancy, often warranting surveillance for asymptomatic patients, whereas MCN, IPMN and SPN carry higher malignant potential, frequently necessitating surgical intervention. Guidelines advocate observation for low-risk branch duct IPMN and asymptomatic or low-risk MCN patients with tumors smaller than 4 cm. Conventional imaging's diagnostic accuracy for PCNs falls below 50%, highlighting a significant clinical challenge. Radiomics, a non-invasive imaging-based diagnostic method, presents a novel approach by extracting high-dimensional features from images, offering promise for improved PCN diagnosis, classification and risk assessment. This review discusses the progress of radiomics in preoperative PCN diagnosis and risk stratification, highlighting current challenges and future directions for development.

Immune characteristics

Soft tissue tumors containing genetic fusions involving EWSR1 and FUS with genes that encode members of the CREB transcription factors family (ATF1, CREB1 and CREM) represent a diverse group of mesenchymal tumors [1]. These tumors exhibit variations in appearance, immune characteristics and behavior. Recently, it has been noted that EWSR1/FUS: CREB fusions identify a subset of aggressive tumors with epithelioid features, showing diverse growth patterns and a particular affinity for cavities lined with mesothelial cells. While primary intra-abdominal epithelioid neoplasms with these fusions are rare, they present a diagnostic challenge due to their varied appearances and immunohistochemically profiles. Here, we present three cases of epithelioid neoplasms within the abdomen, involving the kidney, harboring EWSR1::CREB fusions [2].

These cases comprised two females and one male, aged between 18 and 58 years. All patients underwent radical

nephrectomy without additional therapies. Macroscopically, the tumors were sizable, solitary masses ranging from 5.6 to 30.0 cm. microscopically, they displayed infiltrative borders and were primarily composed of uniform round to epithelioid cells with varying amounts of clear cytoplasm, arranged in different patterns amidst a sclerotic stroma with occasional lymphoid cells. Notably, a hemangiopericytomatous pattern was frequently observed [3]. Nuclear abnormalities were minimal and mitotic activity was low. Immunohistochemically analysis revealed positivity for epithelial membrane antigen and keratin AE1/AE3 in all cases, with some showing focal expression of RNA-sequencing identified EWSR1: CREM fusion in two cases and EWSR1:ATF1 fusion in one case, which was confirmed by subsequent fluorescence *in-situ* hybridization analysis. These findings underscore the rare occurrence of primary renal epithelioid neoplasms with EWSR1::CREB fusions and advocate for their consideration in the differential diagnosis of such tumors. These patches may develop a rougher texture during puberty, and various benign or malignant conditions can arise from them. While some studies advocate for early removal due to a potential risk of cancerous transformation, others argue that such transformation is rare and typically occurs in older individuals. Hence, monitoring without immediate surgical intervention is considered a reasonable approach.

Renal carcinomas

The Follicular Thyroid Neoplasm (FTN) poses a challenge in preoperative diagnosis akin to an unresolved puzzle. Typically, clinicians heavily rely on Fine-Needle Aspiration Cytology (FNAC) for initial characterization of thyroid lesions. However, FNAC falls short in distinguishing between benign and malignant FTN due to their similar predominant follicular architecture. Solely relying on cytological, architectural, or cellular criteria proves insufficient in distinguishing various entities such as Follicular Adenoma (FA), Follicular Thyroid Carcinoma (FTC), Follicular Variant of Papillary Thyroid Carcinoma (FVPTC), including Non-Invasive Follicular Variant of Papillary Thyroid Carcinoma (NIFTP) and well-differentiated neoplasms of uncertain malignant potential. Therefore, employing genetic analysis alongside traditional methods becomes imperative for facilitating FTN diagnosis and minimizing the risk of unnecessary surgeries [4].

This study endeavours to delve into the contemporary genetic assessment of FTN by reviewing studies conducted between 2010 and 2020. These studies elucidate the differential gene expression in FTN, offering insights into potential pathways to mitigate diagnostic challenges. Furthermore, novel endocrine cancer-related pathways and putative target genes specific to FTN have been identified, potentially serving as diagnostic biomarkers within associated metabolic pathways. Renal carcinomas rank among the prevalent neoplasms in the Western world, constituting approximately 3% of all malignant tumors in adults and thus representing a significant concern for global healthcare services [5]. Clear cell renal cell carcinoma and papillary RCC collectively account for 80% to 90% of renal carcinomas, although the World Health Organization (WHO) recognizes at least 20 other distinct forms of RCC. Emerging or provisional entities, such as variants of PRCC like papillary renal neoplasm with reversed polarity.

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