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Case Report

Epithelioid Sarcoma of Retroperitoneum with Distant Metastasis in a Young Male: A Rare Autopsy Case Report

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Abstract

Epithelioid sarcoma (ES) is a rare, high-grade malignancy of soft tissue, the most common location is in hand. In this case report, a 26-year-old male patient admitted with the history of polysubstance use such as alcohol, tobacco, ganja, and charas. The chief complaints of the patient were loss of appetite since 15 days, abdominal distension since 5 days, and pain in abdomen since 2 days. On enquiry, history of fever with chills and generalized weakness was present since 1 week. History of appendicectomy done 15 days back. Patient condition got deteriorated 3 days later and expired and partial post mortem examination was done, provisional diagnosis was confluent bronchopneumonia with septicemia in a case of disseminated malignancy which on histopathological examination revealed epithelioid sarcoma of extra-intestinal origin.

Introduction

Epithelioid sarcoma (ES) is a rare, high-grade soft tissue neoplasm with the most common primary location being hand. It was first described by Laskowski in 1961 as "sarcoma aponeuroticum" because of its involvement of aponeuroses and surrounding structures [1]. In 1970, Enzinger coined the current term "epithelioid sarcoma" [2]. Because of its epithelial and mesenchymal differentiation, this tumor was often mistaken for chronic inflammatory processes, necrotizing granulomas, and various fibrous-histiocytic tumors [3]. These lesions were once documented clinically and histologically as malignant and nonmalignant conditions [2]. Misdiagnosis of this tumor can lead to delayed and improper treatment, adversely affecting patient survival. It comprises less than 1% of all soft tissue sarcomas

ES on physical examination is characterized as a firm, non-tender, slow-growing tumor with a predilection for the hands, fingers, and forearms [4-6]. ES initially appears as a single nodule. However, at the time of diagnosis, multiple nodules representing local disease spread may be present. The most common gross appearance is tan-white, non-encapsulated nodules with infiltrating borders [2]. Trauma has been noted to precede the tumor growth [2].

Because of the tendency toward non-painful, indolent growth, ES may be present for months to years before the patient seeks medical attention [5-8]. This "benign nature" should not preclude the clinician from performing a biopsy if other clinical factors point toward malignancy. Occasionally, pain and tenderness, drainage, contractures, muscular weakness, numbness, and tingling may be experienced [7, 8]. Limitation of function is usually not observed. Other locations that the tumor has been reported include the scalp, orbit, parotid gland, palate, penis, perineum, vulva, and buttocks [9-11].

The three variants of ES are epithelioid, spindled, and mixed, with the principal form being epithelioid. These cells are large, round, oval, or polygonal, with abundant, deeply acidophilic cytoplasm and a clear or vesicular, centrally placed nucleus [2, 8]. The cells contain well-defined cytoplasm and distinctive cell borders. Mitotic activity is almost always identified [2, 5, 7]. There are two histologic variations: classic or distal type and proximal type.

Classic ES has a predilection for the superficial dermis or subcutaneous of the distal limbs of adolescence and young adults. Histologically, classic ES commonly characterized by multiple granulomatous nodules. In the center of the nodules, necrosis, hemorrhage and cystic changes commonly appear. In addition, infiltration of chronic inflammatory cells can also be found. The nodules are surrounded by large epithelioid cells, which are polygonal, round, or ovoid. The neoplastic nuclei tend to be circular or ovoid, and the atypia is relatively mild. Apart from that, small nucleoli can be noted. Occasionally, neoplasms grow along the tendon sheath, fascia, blood vessels, or nerves. The shape of neoplastic cells is variable. Some tumor cell cytoplasm is abundant and eosinophilic, resembling rhabdomyosarcoma cells or rhabdomyoblastoma cells, and some of them are spindle shaped, similar to fibrosarcoma cells. Spindled cells may be present focally and are often peripherally located, merging with the epithelioid cells without demarcation [3].

Proximal ES (PES) commonly affects middle-aged people and often presents a as deep soft tissue mass of proximal limbs, external genitalia, and the midline of the trunk [3]. Histologically, PES is similar to classic type, but the neoplastic cells are more aggressive with prominent nucleoli. Tumor necrosis can occur in PES, which is different from granuloma-like structures in classic ES [4,5]. Immunohistochemical study commonly shows strong expression of both epithelioid markers and mesenchymal markers

Ulceration may occur when ES originates at the superficial dermis and subcutaneous tissue. When ES derives from under the fascia it may become affixed to tendons, tendon sheaths, or fascia [4, 7]. ES located on proximal portions of the body tends to be larger and deeper than the superficial forms [5, 8]. Perineural and vascular invasion can also be observed with ES [7].

Anatomic location of ES appears to play a role in prognostication. The overall survival and metastases-free survival are worse in lesions proximal to the elbow or knee [12, 13]. This may be explained by the fact that "proximal-type" epithelioid sarcomas tend to present with unfavorable features, such as increased width, deep-seated tumor

location, and preferential involvement of the pelvic, perineal, and genital regions [12, 14]. Conversely, location on the distal extremities predicts a more favorable outcome [13].

Case report:

A 26-year-old married male patient, Muslim by religion, admitted with the history of polysubstance use. The chief complaints were history of fever with chills and generalized weakness loss of appetite, abdominal distension and pain in abdomen since last 1 week. Appendicectomy was done 2 weeks back. No history of Koch's contact. Based on clinical examination, differential diagnoses were as follows:

1. Peritonitis secondary to post-operative complication
2. Decompensated chronic liver disease with spontaneous bacterial peritonitis
3. Acute Pancreatitis
4. Abdominal tuberculosis

USG revealed gross ascites, liver was normal in size with altered echotexture, pseudo thickening of gall bladder wall with thick sludge. Bilateral echogenic kidneys were present with loss of cortico-medullary differentiation. Mild right sided pleural effusion was also present. IV antibiotics were started. Various lab investigations were performed; CBC showed increased leucocyte count upto 28x 10^3/uL with neutrophilic leukocytosis, mild degree of anemia and platelet counts was within normal limits. On RFT, creatinine was raised and on LFT, total protein and albumin were decreased, LDH & uric acid were raised along with increased calcium and phosphate.

Ascitic fluid examination revealed low SAAG, total cell count- 2673 cells / mm^3 predominantly lymphocytes and on fluid malignant cytology (cell block) few atypical cells of large size with high nucleo-cytoplasmic ratio, orangeophilic cytoplasm, hyperchromatic nuclei with irregular nuclear membrane were seen.

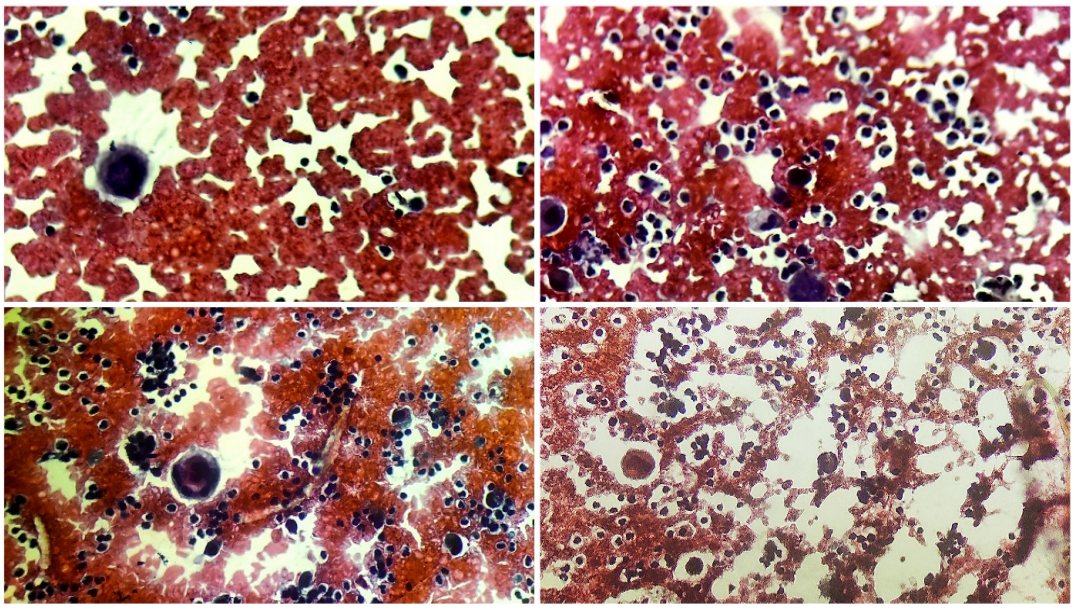

Figure 1:

Oesophagoduodenoscopy revealed hiatus hernia, 2D Echo revealed LVEF 50%, Type I Diastolic Dysfunction, Mild TR and mild PH. MTB was not detected in Ascitic fluid Gene Xpert. Vitamin D was 17.0 and iPTH was 3.5 was low. Serum AFP was normal. Injection calcitonin 100 IU TDS was given for 2 days.

PET CT revealed hyper metabolic soft tissue lesion involving GE junction as well

as presacral region inseparable from rectum, hyper metabolic extensive omento-peritoneal deposits, few FDG avid liver lesions, FDG avid cervical-mediastinal-abdominal-pelvic lymph node lymphadenopathy, extensive ametabolic ascites and few ametabolic bilateral lung nodules, all suggestive of metastatic involvement. Patient eventually succumbed to death. As cause of death could not be ascertained, partial post mortem examination was done. Gross examination revealed multiple tiny nodules over serosa of stomach, pleura, capsule of liver, omentum, multiple mediastinal & abdominopelvic lymph node of variable size 1-3cm in diameter, cortico-medullary differentiation and ratio was lost at places in bilateral kidneys, spleen showed patch of perisplenitis & was fibro congested. So the provisional cause of death was given off as confluent bronchopneumonia with septicemia in a case of disseminated malignancy (natural).

Microscopic examination of H&E sections revealed multiple foci of tumor deposits arranged in multiple nodules separated by thick fibrotic stroma. Tumor lobules arranged in cords/ sheets/alveolar/reticular/ papillary pattern, individual tumor cells are round to polygonal with high nucleocytoplasmic ratio, pleomorphic with hyperchromatic to vesicular nuclei, eccentric placed prominent eosinophilic nucleoli, moderate-abundant amphophilic cytoplasm.

Based on these features we connoted the differentials of

1. Anaplastic large cell lymphoma/ Diffuse large B cell lymphoma
2. Poorly differentiated carcinoma
3. Amelanotic Melanoma
4. Extra gonadal mixed germ cell tumor-with Yolk sac tumor+ gonadoblastoma
5. Carcinosarcoma
6. Epithelioid Sarcoma- alveolar type

Figure 2:

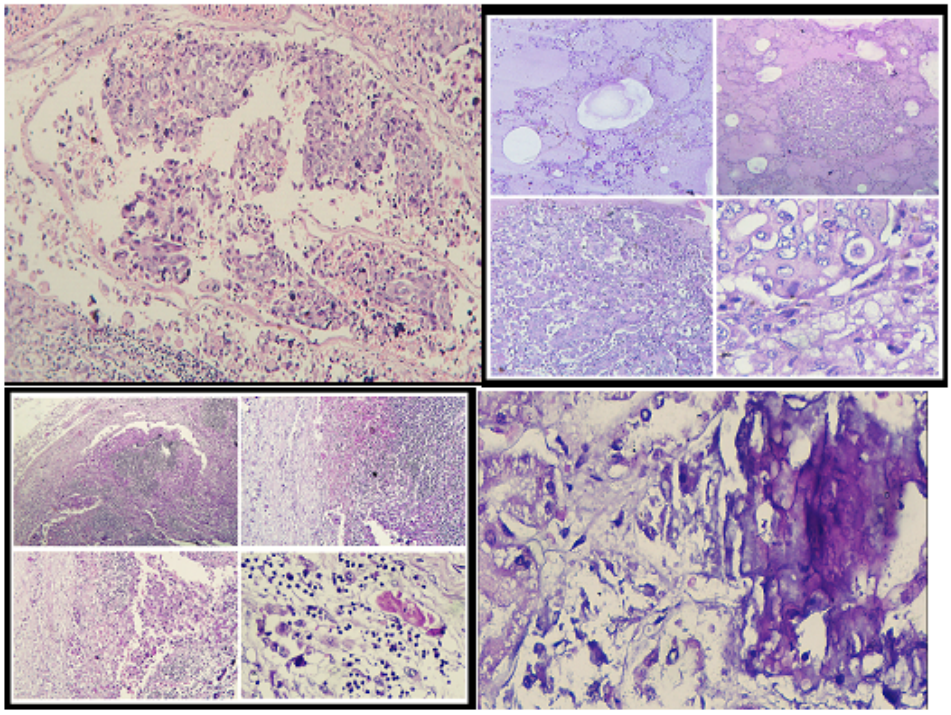

Figure 3:

Immunohistochemical (IHC) evaluation revealed tumor cell reactivity to Vimentin, EMA and PAN-CK but was non-reactive for LCA, AFP, PLAP, MELAN-A.

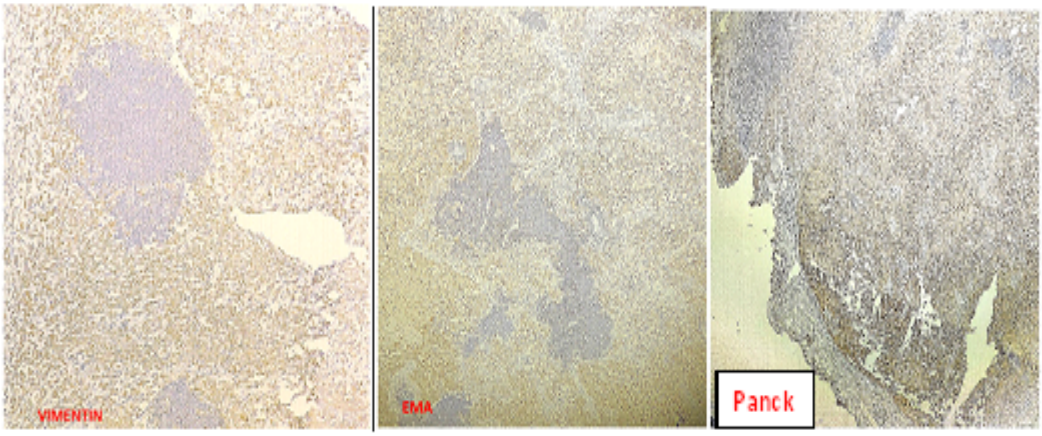

Figure 4:

The microscopy examination along with IHC studies established the diagnosis of epithelioid sarcoma. So the final cause of death was reported as bilateral pulmonary edema with disseminated metastatic malignancy of epithelioid sarcoma.

Discussion:

Epithelioid sarcoma known for its aggressive behavior, has higher rates of relapse after initial treatment and tends to recur locally [15]. Studies have cited the inactivation of SMARCB1 gene [16, 17] to be a major contributor for disease activation. SMARCB1 gene has been shown to be a potent tumor suppressor gene [18, 19] and its inactivation is responsible for the unregulated cellular growth and the formation of cancer tumors [20]. Epithelioid sarcoma is known to simulate a benign process by showcasing protracted growth and usually a painless scenario [21,

22] like our patient had pain since 2 days ago only.

Histologically, epithelioid sarcoma is commonly characterized by multiple granulomatous nodules. In the center of the nodules, necrosis, hemorrhage and cystic changes commonly appear. In addition, infiltration of chronic inflammatory cells like lymphocytes can also be found. The nodules are surrounded by large epithelioid cells, which are polygonal, round, or ovoid. The neoplastic nuclei tend to be circular or ovoid, and the atypia is relatively mild. Apart from that, small nucleoli can be noted [23]. This lymphocytic infiltration and central necrosis give a pseudo granulomatous picture which can masquerade as a granulomatous infection and thereby misguide us in planning the treatment. For the immunohistochemical features, Epithelioid Sarcoma demonstrates positive stain for cytokeratin and EMA in >90% of the cases. Vimentin also is usually positive in most cases. The differential diagnosis can be granuloma, epithelioid angiosarcoma, malignant melanoma, synovial sarcoma, malignant extra renal rhabdomyoid tumor [24].

In the present study, differential diagnosis were Peritonitis secondary to post operative complication, Decompensated chronic liver disease with spontaneous bacterial peritonitis, Acute Pancreatitis, Abdominal tuberculosis, and Acute febrile illness with hepatic involvement. History of appendicectomy 15 days ago, fever with chill since last 10 days, and pain in abdomen since last 2 days were in favor of peritonitis secondary to post-operative complication. Chronic alcoholism, H/o pain in abdomen, abdominal distension, fever with chills were in favor of Decompensated chronic liver disease with spontaneous bacterial peritonitis but no H/o jaundice, pedal edema, melena, hemostasis was against them. H/o abdominal distension and no H/o nausea and vomiting were against acute pancreatitis. No H/o weight loss, TB contact, and acute onset were against abdominal tuberculosis. No H/o jaundice and rash over body were against acute febrile illness with hepatic involvement.

The diagnosis of ES is made via histopathological examination. Prior to obtaining a biopsy of a subcutaneous tumor, some clinicians may prefer to obtain imaging in order to assess for subclinical involvement and the best means of biopsy. Because of its ability to visualize soft tissue detail, magnetic resonance imaging (MRI), as opposed to computed tomography scans and X-rays, is the preferred modality for imaging [6]. Following excision, MRI may also be used to differentiate residual tumor from postoperative disease [6,25]. Misdiagnosis of this tumor can lead to delayed and improper treatment, adversely affecting patient survival. [26]

Conclusion

ES is a rare, high-grade, soft tissue tumor that has a known propensity for local recurrence, regional lymph node involvement, and distant metastases. This malignancy can easily be mistaken for a benign process due to its often innocuous presentation. Because of its potential for aggressive behavior, clinicians must be aware of the presenting behavior of ES in order to avoid misdiagnosis. Unusual nodules must be closely scrutinized if there is a suspicion of malignancy.

References

1. Laskowski J. Sarcoma aponeuroticum . Nowotory. 1961; 11:61–67.
2. Enzinger FM. Epithelioid sarcoma. A sarcoma simulating a granuloma or a carcinoma. Cancer. 1970; 26:1029–1041.
3. Fisher C. Epithelioid sarcoma: the spectrum of ultrastructural differentiation in seven immunohistochemically defined cases. Hum Pathol. 1988:265–275.
4. Schimm AJ, Suit HD. Radiation therapy of epithelioid sarcoma. Cancer. 1983; 52:1022–1025.

5. Chase DR, Enzinger FM. Epithelioid sarcoma. Diagnosis, prognostic indicators, and treatment. Am J Surg Path. 1985; 9:241–263.
6. Herr MJ, Harmsen WS, Amadio PC, Scully SP. Epithelioid sarcoma of the hand. Clin Orthop Relat Res. 2004;4 31:193–200.
7. Woodruff JM, Marcove RC. Epithelioid sarcoma: an analysis of 22 cases indicating the prognostic significance of vascular invasion and regional lymph node metastasis. Cancer. 1978; 41:1472–1487.
8. Bos GD, Pritchard DJ, Reiman HM, et al. Epithelioid sarcoma. An analysis of fifty-one cases. J Bone Joint Surg Am. 1988; 70:862–870.
9. White VA, Heathcote JG, Hurwitz JJ, et al. Epitheliod sarcoma of the orbit. Opthamology. 1994;101.
10. Johannssen V, Janig U, Werner JA. Epithelioid sarcoma of the parotid region (German) Laryngorhinootologi e. 1996;75.
11. Suwantemee C. Primary epithelioid sarcoma of the scalp. Am Soc of Plastic Surg. 1999;104(3):785–788.
12. Callister MD, Ballo MT, Pisters PW, et al. Epithelioid sarcoma: results of conservative surgery and radiotherapy. Int J Radiat Oncol Biol Phys.2001; 51:384–391.
13. Guillou L, Wadden C, Coindre JM, Krausz T, Fletcher CD. "Proximaltype" epithelioid sarcoma, a distinctive aggressive neoplasm showing rhabdoid features. Clinicopathologic, immunohistochemical, and ultrastructural study of a series. Am J Surg Pathol. 1997; 4:491–495.
14. Cassanova M, Ferrari A, Collini P, et al. Epithelioid sarcoma in children and adolescents. A report from the Italian Soft Tissue Committee. Am Cancer Society. 2006; 106:708–717.
15. Ross HM, Lewis JJ, Woodruff JM, Brennan MF. Epithelioid sarcoma: Clinical behavior and prognostic factors of survival. Ann Surg Oncol. 1997; 4:491–5.
16. Jason LH, Paola DC, Christopher DM. Loss of INI1 Expression is Characteristic of Both Conventional and Proximal-type Epithelioid Sarcoma. Am J Surg Pathol. 2009; 33:542–50.
17. Piergiorgio M, Elena L, Federica F, Lisa G, Manuel RT, Silvana P, et al. SMARCB1/INI1 tumor suppressor gene is frequently inactivated in epithelioid sarcomas. Cancer Res. 200 5; 65:4012–9.
18. Lushnikova T, Knuutila S, Miettinen M. DNA copy number changes in epithelioid sarcoma and its variants: A comparative genomic hybridization study. Mod Pathol. 2000; 13:1092–6.
19. Bhaskar K, Jinlong Y, Stefanie BM, Kenneth WT, Shermi YL, Li L, et al. The silencing of the SWI/SNF subunit and anticancer gene BRM in Rhabdoid tumor. Oncotarget. 2014; 5:3316–32.
20. Dina L. Epigenetic reprogramming of epitheliold sarcoma: A role for INI1-HDAC crosstalk. Archived from the original on 2015-04-22.
21. Armah HB, Parwani AV. Epithelioid sarcoma. Arch Pathol Lab Med. 2009; 133:814–9.
22. Fisher C. Epithelioid sarcoma of Enzinger. Adv Anat Pathol. 2006;13: 114–21.
23. Li Y, Cao G, Tao X, Guo J, Wu S, Tao Y. Clinicopathologic features of epithelioid sarcoma: Report of seventeen cases and review of literature. Int J Clin Exp Pathol. 2019; 12:3042–8.
24. Chase DR, Enzinger FM. Epithelioid sarcoma. Diagnosis, prognostic indicators, and treatment. Am J Surg Pathol. 1985; 9:241–63.
25. Hanna SL, Kaste S, Jenkins JJ, et al. Epithelioid sarcoma: clinical, MR imaging and pathologic findings. Skeletal Radiol. 2002; 31:400–412.

26. Gallouo M., Tsikambu A. C. D., Alafifi M., Alafifi R., Boucbhareb E. M., Benghanem M., Moataz A., Dakir M., Debbagh A., & Aboutaieb R. Anuria: Causes and Management in Casablanca. Journal of Medical Research and Health Sciences, 2022; 5(5):1986–1993.