MALIGNANT PERITONEAL MESOTHELIOMA - AN UNFORGOTTEN ABDOMINAL MALIGNANCY

ABSTRACT
Malignant peritoneal mesothelioma is a rare lethal malignancy of the serosal membranes of the peritoneum. The pathogenesis and association is strongly related with industrial pollutants asbestos, but less than pleural mesothelioma. Symptoms are nonspecific and related to the tumor spread within the abdominal cavity. CT scan is the investigation of choice and mostly disease is discovered incidentally on routine imaging. Diagnosis is confirmed on histopathology as well as immunohistochemical analysis of markers. The mainstay of treatment is cytoreductive surgery with Hyperthermic intraperitoneal chemotherapy. Here we present a very unusual case of malignant peritoneal mesothelioma diagnosed on routine evaluation of a 62 year old male admitted in emergency for obstructed inguinal hernia.

CASE REPORT
62 year old male patient presented to the emergency department of our hospital with the chief complaint of pain abdomen, vomiting and swelling on the right inguinoscrotal region for 1 day. On examination, abdomen was distended with tenderness all over the abdomen with obstructed right side inguinal hernia. The patient was resuscitated and was prepared for emergency surgery. But during this period the hernia was reduced with relieve of intestinal obstruction. Further evaluation with ultrasound shows right sided inguinal hernia with omentum, mild to moderate ascites and echogenic debris over the diaphragm and omentum. Contrast enhanced CT scan confirmed multiple omental, peritoneal and liver surface deposits suggesting possibility of metastases [Fig1]. On the basis of above findings, diagnostic laparoscopy was done and revealed metastatic peritoneal deposits all over the peritoneal cavity with gross ascites [Fig.2]. Biopsy histopathological analysis was Malignant peritoneal mesothelioma.

The treatment is focused on targeting the peritoneum with Chemotereaphy and cytoreductive surgery. The most promising marker not only in making diagnosis, but also differentiating benign from malignancy, and germline mutations in younger patients and with a relevant family history.

SYMPTOMS
Symptoms are nonspecific and related to the extent of tumor in the abdominal cavity. The most frequent presentations are abdominal distension and pain in 30-50% of patients due to ascites. Other symptoms are anorexia, weight loss, abdominal mass and new onset abdominal wall hernia [5], like seen in our case in acute presentation. Non-specific symptoms are confusing leading to late diagnosis and also made as a surprise in routine imaging, laparoscopy or laparotomy. The average time between the onset of symptoms and diagnosis is approximately five months [6]. Rarely patient present with paraneoplastic syndrome including fever, thrombocytosis, hypoglycemia, combs’ positive hemolytic anemia and baseline thrombocytosis is one of the independent factor related with shortened survival in diffuse MPM [7]. The clinical presentation of MPM also depends upon the pattern of spread, whether typical diffuse or less common localized disease with better prognosis.

Contrast CT Scan is the imaging of choice and most of the diagnosis often made after CT scan. Soft heterogeneous tissue mass with diffuse distribution should arouse suspicion. Ascitic fluid is more common findings apart from thickening, caking of omentum and mesentery [8].

The Treatment modality is focused on targeting the peritoneum with Chemotheraphy and cytoreductive surgery. With histological analysis, Tandon et al. found that the most sensitive markers calretinin and CK5/6 strongly cytokeratic activity in more than 90% tumor cell [Fig.3] and CEA negative in tumor cell, D2-40 strongly membranous positivity in tumor cell [Fig 4]. There was no history of any chronic asbestos exposure. The patient was planned for cytoreductive surgery with Chemotherapy, but got discharged on request and lost to follow up.

DISCUSSION
First described by Miller and Wynn in 1908, Malignant peritoneal mesothelioma is a very rare and uncommon malignancy of peritoneum [1]. Most of this serosal malignancy occurs in the pleural cavity and strongly related to the occupational exposure of asbestos. Epidemiologically peritoneal mesothelioma differs from the common pleural mesothelioma. This MPM is a disease of adults with median age of presentation around 51-59 yrs, younger than pleural mesothelioma. MPM affects equally in both males and females, whereas it predominately affects male in pleural mesothelioma [2]. There is a strong relationship between asbestos exposure and the development of mesothelioma, although the risk is less in peritoneal compared to pleural mesothelioma (33-50% vs. 80%). Asbestos is the best defined risk factor [3] and the latency period between exposure and development is around 20 to 40 yrs [4]. Other identifiable risk factors are direct peritoneal external beam radiation, Simian virus 40, papovavirus, chronic peritonitis and also in genetic inherited susceptibility of BRCAs associated protein 1 (BAP1) mutation. BAP1 is
Fig.1-CT Scan showing ascites with multiple deposits

Fig.2 Peritoneal deposits and ascites on Dx. lap.

Fig.3 CK 5/6, strongly positive in tumor cell

Fig.3 D 2-40-Strongly positive in tumor cells

REFERENCES:
1. Miller J, Wynn H. Malignant tumor arising from the endothelium of peritoneum, and producing mucoid ascetic fluid. J Pathol Bacteriol 1908;12:267-78
2. Hemminki K, Li X. Time trends and occupational risk factors for peritoneal mesothelioma in Sweden. J Occup Environ Med 2003; 45:451.
3. García-Fadrique A, Mehta A, Mohamed F, et al. Clinical presentation, diagnosis, classification and management of peritoneal mesothelioma: a review. J Gastrointest Oncol 2017;8:915-24.
4. Frost G. The latency period of mesothelioma among a cohort of British asbestos workers (1973-2005). Br J Cancer 2013; 109:1965
5. Cao S, Jin S, Cao J, et al. Advances in malignant peritoneal mesothelioma. Int J Colorectal Dis 2015;30:1-10.
6. Kaya H, Scag C, Tanrikulu AC, et al. Prognostic factors influencing survival in 35 patients with malignant peritoneal mesothelioma. Neoplasma 2014;61:433.
7. Li YC, Khoshab T, Terhune J, et al. Preoperative Thrombocytosis Predicts Shortened Survival in Patients with Malignant Peritoneal Mesothelioma Undergoing Operative Cytoreduction and Hyperthermic Intraperitoneal Chemotherapy. Ann Surg Oncol 2017; 24:2259.
8. Park JY, Kim KW, Kwon HJ, et al. Peritoneal mesotheliomas: clinicopathologic features, CT findings, and differential diagnosis. AJR Am J Roentgenol 2008; 191:814-25.
9. Tandon RT, Jimenez-Cortez Y, Taub R, et al. Immunohistochemistry in Peritoneal Mesothelioma: A Single-Center Experience of 244 Cases. Arch Pathol Lab Med 2018;142:236-42.