Growing Teratoma Syndrome of Ovary: An Unusual and a Late Manifestation in the Small Bowel, a Very Rare Encounter

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Case Report

Abstract: Growing teratoma syndrome of an ovarian non Dysgerminomatous germ cell neoplasm is a rare clinical phenomenon that is characterized by multiple enlarging masses composed of mature elements. Growing teratoma as an ovarian tumour is uncommon,it is more frequently described in testicular germ cell tumours. This report concerned a young woman aged 30 years with growing teratoma late presentation, twenty years after her first surgery, presented like metastaticrecurrent disease, who required complete resection with small bowel anastomosis. The exact cause of conversion and growth is unknown and is hypothesized to be induced by chemotherapy. Knowledge of this entity is important, to avoid misdiagnosis as disease recurrence and continuing chemotherapy, as these patients with non-dysgerminomatous germ cell tumours who present with recurrent metastatic masses during or after chemotherapy,in the context of normalized serum markers are refractory to chemotherapy. Complete resection is essential to prevent progression of tumour and is often curative, hence, it will render better prognosis. Keywords:Bleomycin Etoposide Cisplatin Chemotherapy, Growing teratoma syndrome(GTS), Non dysgerminomatous germ cell tumours,Immature ovarian teratoma.

Introduction

Immature ovarian teratoma is the third most common germ cell tumour following dysgerminoma and endodermal sinus tumor. In child bearing age the treatment of choice is unilateral oophorectomy followed by postoperative chemotherapy (BEP) in all stages except Stage Ia pure dysgerminoma and Stage IaG1 Imature teratoma..DiSaia was the first to describe appearance of distant benign metastasis during routine follow-up. Growing teratoma syndrome is aclinico-pathological presentation during / postchemotherapy in malignant ovarian germ cell tumor where mature teratoma grows, requiring complete surgical excision.In our case scenario similar occurrence was noted very late after twenty two yearspost Chemotherapy which is extremely rare with abdominal masses along with normal ovary, tube and uterus.

Case Report

A 30 year old lady married female presented to our hospital on January 2014 with gradual abdominal distention and dull aching pain in the lower abdomen of four months duration. There was no loss of weight or appetite. There were no upper gastrointestinal symptoms. Past surgical history reveals at the age of 8 years she underwent Right salpingo-oophorectomy for immature teratoma grade1, FIGO stage1a1988 followed by a four course of Bleomycin Etoposide Cisplatin regimen with complete remission. Despite being advised for close surveillance, she defaulted follow up after four months postoperative. The patient had delivered ahealthybaby twenty years after the initial treatment by spontaneous conception. The patient was para 1 and had been having regular menses.There was no family history of similar complaints. Per abdomen examination revealed a distended abdomen and irregular mobile mass with nodular surface in the umbilical extending into left lumbar area measuring 15 x 10x10 cm. per vaginal examination was normal. In view of the clinical symptoms and examination findings, ultrasound of abdomen and pelvis was done. CT scan could not be due to financial constraints.Ultrasound revealed a complex cystic lesion with irregular walls measuring approximately 9.4x7.3cm in the lower pre aortic region with septations, internal vascularity and calcific foci within. It extends into left lumbar region. Another similar small lesion in right in lumbar region measuring 2.3 x2.1cm. Uterus and left ovary appears normal. Another complex cystic lesion seen in segment V of the liver with echogenic areas andpost shadowing-suggestive of calcification measuring 3.2 x2.3cm.No ascites and loco regional lymph adenopathy. In view of the appearance of the mass in ultrasound and considering her past surgical history a provisional diagnosis of ovarian neoplasm was

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thought of. The first differential diagnosis made was a germ cell tumor, most likely a immature teratoma recurrence. The patient's serum alpha foeto protein, CA - 125, Lactate dehydrogenase and human chorionic gonadotropin levels were normal, which is a hallmark feature of GTS. Thus favouring possibility of a germ cell tumor. She underwent exploratory laparotomy with excision of the abdominal mass which was smooth nodular solid cystic and measuring 15x10x10cm arising from the mesenteric border of the small bowel, ileum with another mass of 2x1x1cm distal to it [Figure 1 Gross]. Intraoperative frozen section [Figure 4 Gross] revealed mature tissue composed of neural elements , mucinous epithelium , well formed glands and cartilage. No immature elements seen. Hence we preceded with complete excision of the multiple tumor masses. Excision of the other similar mass along the antimesentric border of ileal loop [Figure 3 Gross] with resection of a segment of the bowel measuring 5x5 cm and end to end anastomosis as the tumor was indentingthe mucosa of small bowel.[Figure 2 Gross] Another similar mass arising from the transverse colon measuring 10x8x6cm along the antimesentric border with small bowel loops densely adherent to it was finely dissected out. Cystic mass measuring 2x3x.5cm arising from the anterior abdominal wall anterior to the bladder peritoneum also excised. Surface deposit on the liver segment V measuring about 3x2x2.5cm was excised. Uterus and left ovary, left tube appeared normal and was preserved. Postoperative histology revealed mature teratoma with no immature elements or viable germ cell element [Figure 5-6].In post operative follow up she is disease free and has resumed menstruation. Latest scan showed no residual disease. The preoperative normal value of serum alfa foeto protein level, ultrasound having growing masses with calcification within the lesions, held the key to the diagnosis and postoperativehistology made a final diagnosis of growing teratoma syndrome requiring a complete surgical resection. Currently the lady is asymptomatic and kept on clinical, radiological and biochemical follow-ups.

Discussion

GTS is an unusual syndrome seen post-treatment in cases of non-seminomatous germ cell tumour, with a reported incidence of 1.9 to 7.6% [1-10]. First described by Logothetis et al in 1982, it comprises of enlarging chemotherapy-refractory masses surgically respected containing mature teratomatous elements [1-2]. While a growing teratoma syndrome after treatment of non-seminomatous testicular germ cell tumours has been widelydescribed [3]. A similar phenomenon has been separately described in ovarian neoplasms, termed as "chemotherapeutic retroconversion"[9]. Arguably in pure chemotherapeutic retroconversion the nodules do not increase in size unlike growing teratoma syndrome[10].This comprises of distant metastases with benign mature elements which is considered to be synonymous with growing teratoma syndrome [4]. In GTS, the masses have the ability to grow, which is lacking in chemotherapeutic retroconversion [10]. Its growth rate can vary significantly and must be considered when evaluating cases [4] The etiology of GTS is unclear. The two most-quoted theories are that: (1) chemotherapy destroys only the immature malignant cells, leaving the mature benign teratomatous elements and (2) chemotherapy alters the cell kinetics by converting a totipotent malignant germ cell toward a benign mature teratoma. A third hypothesis offered by Hong et al., proposes an inherent and spontaneous differentiation of malignant cells into benign tissues, as suggested by the experimental murine teratocarcinoma mouse model. This hypothesis further implies that chemotherapy permits "spontaneous evolution" to occur as the chemotherapy prolongs the disease with prolonged patient survival [10] In a patient with a history of a germ cell tumour with normal tumour markers, during or after completion of chemotherapy, the diagnosis can be made, based on a combination of imaging evidences of increasing size of masses containing fat, calcification or cystic changes. Absence of activity on FDG-PET has been shown to be useful in confirming the benign nature of these lesions [9]. The enlarging metastatic masses can occur anywhere in the pelvis, retroperitoneum, liver, lungs, mesentry, mediastinum ,intracranial, forearm , supraclavicular or inguinal lymph nodes[10].In our study she had presented after twenty two years disease free interval which necessitates the need for close surveillance as early recognition will allow for surgical salvage[1] and alleviates compressive symptoms, avoids extensive surgical dissection , risk of adjacent organ injury and decreases the difficulty of the operation. In our study we encountered with multiple solitary nodular masses distributed along mesenteric and antimesentric border of small bowel, liver surface and parietal peritoneum with normal uterus and ovaries[5].The peritoneum of pelvis and abdomen and retroperitoneum are the most frequent sites of metastasis due to dissemination, lymphogenous and haematogenous patterns of metastasis [8].The rapidly growing lesions if undiagnosed early can lead to mass effect or compressive symptoms,requiring surgery [5].Surgical excision will prevent very rare possibility of sarcomatous transformation (3%)within the lesions[2].Resumption of menstruation and successful pregnancies have also been reported.[6-7].The development of GTS had been reported as early as 3 month and in some cases delayed till 8 years[9].In our

study she was asymptomatic for twenty two years after her surgery for immature teratoma and chemotherapy with normal menstruation and one successful pregnancy. Theoccurrence of GTS as late a twelve years post chemotherapy has been reported [10], but our study is a very rare presentation of GTS after twenty two years of chemotherapy. Based on our study, intensive fertility preserving surgery followed by chemotherapy may be effective in preserving the reproductive function of women with malignant immature teratoma of the ovary [6-9]

Conclusion

Growing teratoma syndrome is are condition has overall good prognosis. Despite the increase in their sizes, neither should these be misdiagnosed for signs of disease progression nor should chemotherapy be given, as serum tumour marker levels remain normal and lesions are chemorefractory. One should bear in mind the good prospects of resumption of menses and childbearing .The final diagnosis depends on the histologic confirmation of mature elements and the absence of any malignant germ cells on final surgical pathology. Finally one has to be aware of this condition and remain vigilant on long term follow ups with early recognition and diagnosis of the paradoxical response of the disease with enlarging tumours and normal serum markers, serial imaging and a complete surgical resection of tumours.

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