Retroperitoneal Recurrence of Sex Cord Stromal Tumour with Annular Tubules A Rare Case Report

Vasanth Abhilash[1], Patel Shilpa[2], Arora Ruchi[3], Parekh Chetana[4], V Priyanka[1], Warikoo Vikas[5]
Mch Resident[1], Professor and Head[2], Professor[3], Associate Professor[4,5]
Department of Gynaecological Oncology[1-4], Department of Surgical Oncology[5],
The Gujarat Cancer & Research Institute, Asarwa, Ahmedabad, Gujarat
Corresponding Author: shilpa.patel@gcriindia.org
[1]https://orcid.org/0000-0002-7192-0969
[2]https://orcid.org/0000-0002-3090-5455
[4]https://orcid.org/0000-0003-4811-5889
[5]https://orcid.org/0000-0001-8208-4778

Summary

Sex cord tumour with annular tubules (SCTAT) are rare pure sex cord tumours with low malignant potential. Majority of cases are sporadic and around one-third are associated with PeutzJeghers Syndrome (PJS). Sporadic cases have tendency for late recurrences commonly in retroperitoneal region. Surgery remains the mainstay treatment. A 38-year-old lady presented to us with retroperitoneal recurrence of ovarian tumour which was encasing and thrombosing IVC. Lesion also partially encased infrarenal aorta and common iliac artery. She underwent cytoreductive surgery following neoadjuvant chemotherapy (NACT). Final histopathology revealed SCTAT. Stable disease was noted on NACT. Cytoreductive surgery was performed with multidisciplinary team and adjuvant chemotherapy given. Patient is disease free till last follow up.

Keywords: Sex cord tumor with annular tubules, Cytoreductive surgery, Neoadjuvant chemotherapy, Retroperitoneal recurrence

Introduction

Sex cord tumour with annular tubules (SCTAT) are rare, distinct tumours and account for less than 1% of sex cord stromal tumours (SCST). They have intermediate features between granulosa cell tumour and Sertoli cell tumour.[1] Majority cases are sporadic and around one-third are associated with PeutzJeghers Syndrome (PJS). Since very few cases are reported, no agreement upon standard treatment is available. Recurrences are reported in sporadic cases.[2] Here we report a case of retroperitoneal recurrence of SCTAT treated with cytoreductive surgery following neoadjuvant chemotherapy (NACT).

Case Report

A 38-year-old P4L4 was referred to our hospital with an abdominal mass present since 2 years. She had history of surgery 7 years ago in 2014 for adnexal mass, details were not available. Patient gives history of laparotomy again 2 years back in 2019 outside and declared inoperable with intra-operative findings noted as large retroperitoneal mass on right side adherent to right ureter, iliac vessels and mesenteric vessels. Biopsy from retroperitoneal mass was taken but report was not available. She had regular normal menstruation. Patient had no comorbidities or significant family history.

On examination, vitals stable, general examination including oral cavity normal. Per abdomen, 2 vertical scars midline, one supraumbilical and other subumbilical noted. A hard fixed mass was noted in right iliac fossa reaching midline of 15x10cm size. On per speculum, cervix was bulky. On per vaginal examination, uterus bulky and mobile. On per rectal examination, lower border of mass felt. Her CT Scan showed large retroperitoneal heterogeneously enhancing centrally necrotic soft tissue mass of 10x16x22cm size in infrarenalretrocaval region extending upto right iliac fossa markedly compressing and thrombosing IVC. Lesion partial encased infrarenal aorta and right common and external iliac artery without causing stenosis. Lesion markedly displaced right ureter and posteriorly lesion was in contact with psoas muscle without invasion.

Since mass was radiologically and clinically inoperable, biopsy was done from mass which was reported as low grade cells arranged in nested pattern with abundant hyaline sclerosis surrounding nests. The cells show abundant cyanophilic cytoplasm and central nucleus with occasional nuclear grooving. These features were suspicious for epithelial/ neuroendocrine tumour/ lymphoma. Immunohistochemical markers were put on this biopsy and was EMA, synaptophysin, LCA, PAX5, HMB45, Actin, Desmin, MYOD1, MUC4, S 100 Negative and positive for vimentin, Inhibin and calretinin. Based on these, sex cord stromal tumour of ovary was suggested. Her CA125 was 6.47 U/ml and HE4 92.4pmol/L and other germ cell markers were

normal. Her serum inhibin B level was measured as biopsy suggested SCST and was found to be >1050pg/ml. She was started on LMWH therapeutic dose for 1 week which was converted to Tab Apixaban 5mg BD on cardiology advice for IVC thrombosis. Patient was planned for neoadjuvant chemotherapy considering inoperability.

She received 3 cycles of paclitaxel and carboplatin as neoadjuvant chemotherapy, following which tumour marker and CT scan were repeated. Serum Inhibin B levels remained >1050pg/ml and CT Scan revealed 8x14x16cm lesion in right adnexal region displacing right ureter and encasing branches of superior mesenteric artery and loss of fat plane with IVC and right common iliac vessels (Figure 1). No other lesions were noted. Since patient had 27% reduction in length diameter, one more cycle of chemotherapy followed by debulking surgery was planned.

After detailed risk consent, cytoreductive surgery was planned with multidisciplinary team involving gynaecological oncologist, gastrointestinal oncologist, cardiothoracovascular surgeon and anaesthetists. Patient underwent right retroperitoneal mass excision with paraaortic node dissection with retrocaval node removal with omentectomy, total abdominal hysterectomy and left salphingo-oophorectomy (cc score-0). Intra operatively, uterus was bulky, a 20x18cm mass in right retroperitoneum with right ureter passing through its capsule with right infundibulopelvic ligament adherent to it and ovary not seen separately. Mass was densely adherent to infrarenal abdominal aorta and right common iliac artery. Infrarenal IVC was found to be flat with mass encircling it. Ureter was meticulously separated from mass and then mass was separated from vessels (IVC, Right common and external iliac vessels) by sharp dissection (Figure 2). Inferior mesenteric artery identified and preserved. No blood flow was noted in infrarenal IVC and common iliac vein but retroperitoneal collateral veins draining into IVC noted. Graft was not placed as collaterals were well established. Perioperative anticoagulation managed as per cardiology opinion. Patient recovered well in post operative period.

Her final histopathology suggested sex cord stromal tumour with annular tubules of 23X18X7cm size in retroperitoneal mass with capsule infiltration by tumour (Figure 3). On cutting, nodular, yellowish

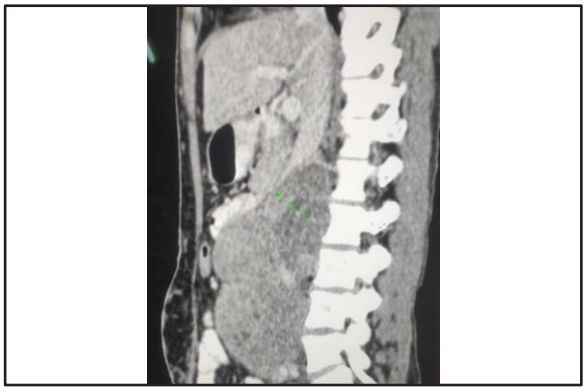

Figure 1: CT Scan showing mass adherent to IVC. Green arrow shows IVC.

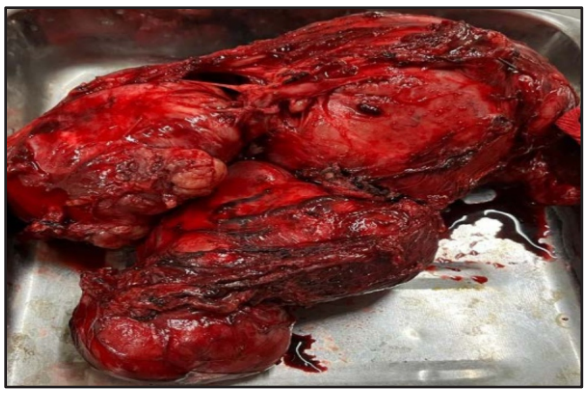

Figure 3: Retroperitoneal tumour after removal

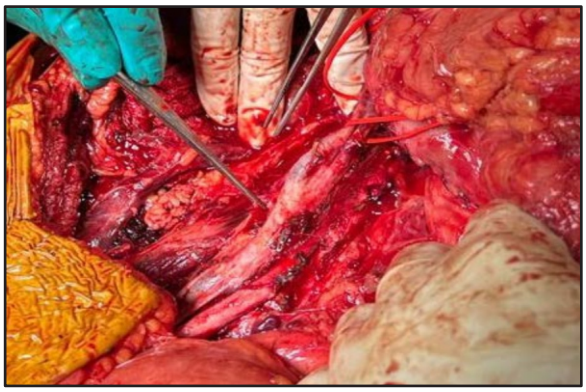

Figure 2: Retroperitoneum after tumor removal; Forceps point towards area where tumor was adherent to IVC.

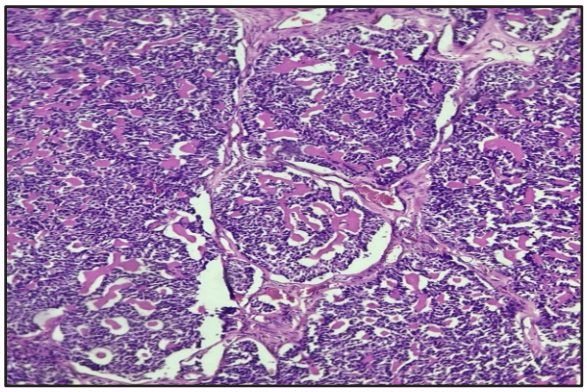

Figure 4: Microscopic picture of SCTAT

white and haemorrhagic areas were seen. Microscopy showed tumour arranged in lobules containing sharply circumscribed ring shaped tubules containing hyalinised basement membrane like material (Figure 4). Endometrium was proliferative and other ovary was normal. Two of five retrocaval nodes were positive and omentum was free of tumour. Her post operative inhibin B was 2pg/ml. Patient received 2cycles of adjuvant paclitaxel and carboplatin (total 6 cycles of chemotherapy with last dose in May 2022). Patient is doing well and disease free at present (last follow up in February 2023).

Discussion

SCTAT are very rare neoplasms comprising less than 1% of sex cord ovarian tumors.[1] Robert Scully described them for first time in 1970 and considered these tumours as a distinctive phenotype intermediate between granulosa cell and Sertoli cell tumours. He considered granulosa cells as probable origin with a growth pattern more characteristic of Sertoli cell tumors.[3]

Two varieties of SCTAT exists. First one associated with PeutzJeghers Syndrome (PJS) seen in one third of cases. These tumours are usually benign, multifocal, calcified, bilateral, very small (<3cm) or even microscopic and present at younger age (mean age 27 years). Second variety is sporadic tumours usually occur in older patients (mean age 36years), are unilateral, large, and have malignant potential in 22% cases.[1,4] Our patient even though did not undergo genetic testing for STK11, but her clinical picture fits into sporadic case i.e, unilateral, large tumour, recurrent with malignant potential.

Since the tumour secretes hormones, patients present with features of hyperestrogenism such as heavy menstrual bleeding, precocious puberty or irregular bleeding. Few reports of tumour secreting progesterone also exists with decidualised stroma in hysterectomy specimens.[4] Our patient had no menstrual complaints and histopathology was normal.

Various studies reported no elevation in CA 125 or CEA levels and Inhibin and Mullerian Inhibiting substance as potential markers.[2] As seen in our case also, CA125 was normal and Inhibin B was elevated which normalised post tumour removal. SCTAT diagnosis is usually based on pathological examination of the tumour and preoperative or intraoperative SCTAT diagnosis is rather difficult.[2] Similarly in our case, final histopathology diagnosed SCTAT.

Recurrences were reported as early as 3 months to as late as 20 years. Malignant behaviour in SCTAT has been noted only in sporadic cases. Lymphatics is main channel of spread with pelvic, para-aortic and supraclavicular lymph nodes reported as common sites of metastasis. Other sites of tumour recurrence and metastasis noted in literature include retroperitoneum, parietal and visceral peritoneum, liver and lung.[5] Even in our case lymphatic spread is noted to external iliac and aortocaval nodes.

Surgical treatment and staging are similar to other ovarian cancers. Since the tumour is very rare, no standard treatment protocol exists. For primary treatment, staging laparotomy followed by adjuvant chemotherapy for stage II to IV is commonly practised. Fertility preservation can be considered for non-syndromic SCTAT. As discussed earlier, recurrences are noted in retroperitoneum and nodes and lymphatic spread is common. Hence pelvic and para-aortic lymphadenectomy should be considered during surgery. Chemotherapy used is cisplatin, etoposide and bleomycin (BEP).[2,6]

For recurrence, treatments include Secondary cytoreductive surgery, chemotherapy with docetaxel, paclitaxel/ifosamide, and paclitaxel/carboplatin, radiotherapy or hormone therapy. Neoadjuvant chemotherapy in recurrent setting was used by Ping Zheng et al with 3 cycles paclitaxel liposome and nedaplatin.[6] Only 2 case reports with paclitaxel and carboplatin (TC) for recurrence in adjuvant setting are reported.[2,6] Our patient received TC as neoadjuvant chemotherapy in recurrent setting with 27% decrease in tumour size (stable disease as per RECIST 1.1 criteria). Considering indolent nature of tumour growth, poor chemoresponse was anticipated in our patient and surgery was planned. Even though surgery was very challenging, team work yielded excellent results and CC score 0 was achieved.

SCTAT is an ovarian tumour with low malignant potential and late recurrence. In study by Qiuhong Qian et al with cohort of 13 patients, recurrence rate was 46.2% and multiple recurrences in 38.5% of patients. Recurrences were located mainly in retroperitoneum, such as pelvic and para-aortic lymph nodes. Apart from retroperitoneum, three patients had supraclavicular lymph node metastasis and two patients had extensive metastasis in the abdominal and pelvic cavity. Most recurrences were controlled by surgery with or without adjuvant therapy. One year and 5-year PFS were respectively 92% and 67%. With increasing numbers of recurrences, PFS shortened. The 5-year Overall survival was 100%. This study observed that though the recurrence rate is high, the prognosis is relatively favourable. This study also suggested that effect of chemotherapy is not clear in these tumours and role of lymphadenectomy at primary surgery should be further studied as most recurrences were in retroperitoneum and despite chemotherapy.[2]

Conclusion

Considering its unusual behaviour with delayed recurrence, regular long-term follow up is essential in SCTAT. Surgery forms the mainstay of treatment for recurrence. Multidisciplinary team approach is needed to achieve optimal results.

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