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Case Report

Pathology Section

A Rare Case of Poorly-Differentiated Sertoli Leydig Cell Tumour of Ovary with Mesenchymal Heterology

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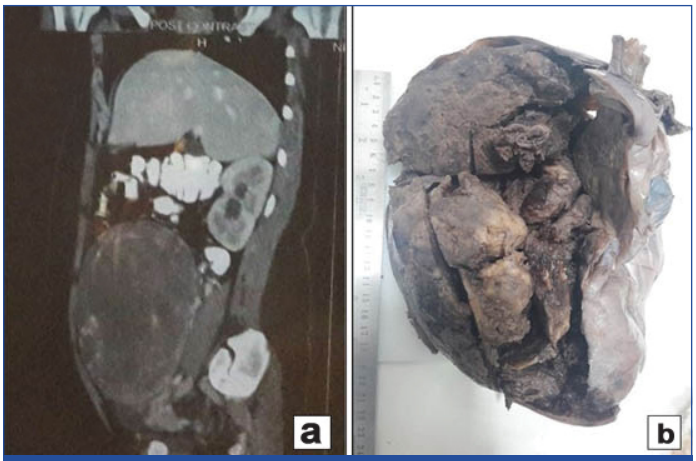
ABSTRACT

Sertoli–Leydig Cell Tumours (SLCT) accounts for less than 0.5% of all ovarian neoplasms. Presence of mesenchymal heterologous elements in a poorly differentiated SLCT is extremely uncommon. It not only causes diagnostic difficulty but also renders an aggressive behaviour to the tumour. We report a rare case of poorly differentiated SLCT with cartilage and rhabdomyoblastic differentiation along with review of literature.

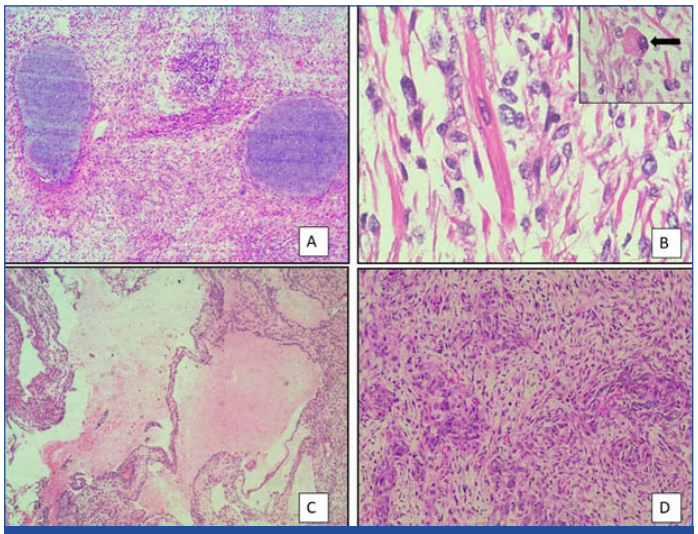
Keywords: Cartilage, Heterologous elements, Ovarian tumour, Rhabdomyoblastic differentiation

CASE REPORT

A 17-year-old unmarried woman presented with secondary amenorrhoea of two months duration along with lower abdominal pain and distension. Abdominal examination revealed a mass of 20 weeks gestation size. Computed tomography showed a 16×10 cm solid cystic mass with multiple septae in the right adnexal region [Table/Fig-1a]. Her CA 125 levels were elevated at190 u/l and Serum beta-HCG and AFP levels were normal. Patient underwent right salpingo-ophorectomy. Grossly, tumour measured 18x10x6.5cm and had a smooth and congested capsule. Cut-section was solid and cystic with variegated appearance with grayish white areas along with haemorrhage, necrosis and translucent areas of cartilage [Table/Fig-1b]. Microscopy showed a tumour predominantly composed of spindle cells with foetal type cartilage [Table/Fig-2a]. At places foci of skeletal muscle differentiation in the form of strap cells and cells resembling rhabdomyoblasts were discernable [Table/Fig-2b]. The mitotic count in the most cellular area was approximately 2-3/10 High Power Fields (HPF). There was presence of anastamosing channels resembling vascular spaces along with retiform areas [Table/Fig-2c]. A minor component of small oval cells with scant cytoplasm and hyperchromatic nuclei arranged in nests cords and tubules were seen [Table/Fig-2d]. These tumour cells displayed brisk mitosis of 2-3/10 hpf. In view of the histomorphology, a diagnosis of teratoma was initially considered. However, on Immunohistochemistry (IHC), tumour cells expressed calretinin, inhibin alpha and pan cytokeratin [Table/Fig-3a-c]. They were negative for epithelial membrane antigen and synaptophysin. The stains also highlighted the presence of scanty, peripherally located leydig cells which were missed on haematoxylin and eosin stain. The spindle cell areas expressed desmin and focal myogenin [Table/Fig-3d]. A final diagnosis of poorly differentiated SLCT with heterologous cartilage and rhabdomyoblastic differentiation was given based on morphology and immunohistochemistry. The patient was advised adjuvant chemotherapy and close follow-up. On follow-up the patient was free of disease, one year post-treatment.



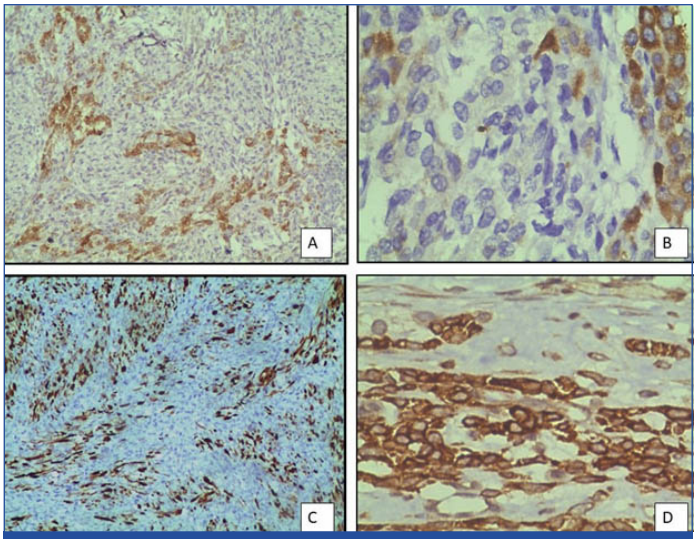
[Table/Fig-1]: a) CT Scan- showing a large solid cystic adnexal mass with multiple septae; b) Gross appearance - showing solid cystic tumour with variegated appearance and haemorrhage.



[Table/Fig-2]: Histopathogical features: a) Low power view showing tumour with spindle cells and foetal type of cartilage. (H&E-10x); b) High power view showing strap cells with rhabdomyoblast (inset). (H&E-40x); c) Low power view showing tumour with retiform areas. (H&E-10x); d) High power view showing immature sertoli cells in sheets and nests with small dark nuclei.

DISCUSSION

The presence of heterologous elements in poorly-differentiated SLCT can be of endodermal or mesenchymal types [1-3]. The earliest case of heterologous elements in SLCT was reported by Mayer in 1930, who described the presence of mucinous epithelium [2]. Endodermal heterology with presence of GIT epithelium, carcinoid-like areas and cells resembling hepatocytes have been more commonly described [3]. However, on review of literature till now only 23 cases of PDSLCT with mesenchymal heterology have been reported [Table/Fig-4] [2,4-11]. In 1982, Prat J et al., reviewed 190 cases of SLCT and found only 12 cases with mesenchymal heterology with presence of immature cartilage, skeletal muscle and neuroblastoma in one case [2]. Though age group of reported cases



[Table/Fig-3]: Immunohistochemistry profile of tumour: a) calretinin positivity (IHC-10X); b) Focal inhibin positivity. (IHC-40X); c) Pan cytokeratin positivity (IHC-10X); d) spindle cells showing desmin positivity (IHC-40X).

This finding is in contrast to pure SLCT and those with endodermal elements where majority of the tumours are stage IA with favourable prognosis [1,3]. On gross examination these tumours tend to be more cystic than solid in comparison to well-differentiated SLCT [1-3]. On microscopy they display a wide range of histological spectrum with mixture of spindle cells, skeletal muscle, rhabdomyosarcomatous component, cartilage and are prone to misinterpretation due to presence of admixture of components. The areas of sertoli cell differentiation are composed of small clusters and cords of dark blue cells along with few leydig cells. The differential diagnosis of SLCT with mesenchymal heterologous elements includes teratoma, primary ovarian sarcomas (rhabdomyosarcoma, chondrosarcoma) and Malignant Mixed Mullerian Tumour (MMTA). Teratoma contains a wide range of elements including skin and its appendages, neuroepithelium and glial tissue and lacks presence of sertoli leydig cells. Primary ovarian sarcomas are present in older females and tend to be solid. Further, areas of skeletal muscle differentiation are less pleomorphic, more mature with a lesser mitotic count as compared to PDSCLT [2]. Metaplastic cartilage in SLCT is also

Author	Age	Symptoms	Type of heterologus elements	Treatment	Recurrence if any	Recurrance after time interval	Treatment after recurrence	Follow-up
Kanter & klawans [2]	33	A,V,M	Cartilage, GI epi	USO	Nil	-		Disease free at 5 months
Krock & Wolferman [2]	18	A ,V	Cartilage	USO	Omentum and right ovary	13m		Died at 17 months
Hughesdon & Fraser [2]	53	V, M	Skeletal M, GI epi	TAH with BSO	Pelvis	6m		Died at 8 months
Prat J et al., [2]	32	A,M	skeletal M, cartilage	TAH with USO	Peritoneum	5 m	-	Died after 5 months
Prat J et al., [2]	11	M	Cartilage, GI epi	USO	-	-	-	Alive after 10 years
Prat J et al., [2]	22	M	Skeletal M	Biopsy	-	-	-	Not known
Prat J et al., [2]	17	M	Skeletal M, GI epi	U SO	Right ovary and pelvis	6m	-	Died after 12 months
Prat J et al., [2]	20	A,V,M	Skeletal M	TAH+BSO	peritoneum	5m	SX+CT+RT	Died after 10 months
Prat J et al., [2]	36	M	Skeletal M, cartilage	USO	peritoneum	5 m	-	Died after 6 months
Prat J et al., [2]	16	A	Skeletal M	USO	Left ovary and peritoneum	6m 5Yrs	SX+CT	Died after 7 years
Prat J et al., [2]	20	V,M	Skeletal M	USO+ CT	Left ovary	4 m	SX+RT	Died after 18 months
Prat J et al., [2]	14	M	Cartilage	USO	Pelvis	3m	RT	Died after 9 months
Prat J et al., [2]	24	M	Cartilage, GI epi	USO	Omentum and pelvis	5 m	SX +CT	Died after 18 months
Prat J et al., [2]	48	A,M	Skeletal M, cartilage	TAH+USO	-	-	Not known	Not known
Prat J et al., [2]	23	V, M	Cartilage, GI epi, skeletal M	USO	Peritoneum and pelvis	1 year	CT	Alive and disease free at 2 years
Talerman A et al.,	22	-	Skeletal M	USO	-		-	Disease free after 10 months
Grove A et al., [5]	29	M	Cartilage, RMS	USO	-		-	Disease free after 4 yrs
Guerard MJ et al., [6]	16	V,M	RMS	USO	Abdomen	6 m	SX+CT	
Brightwell R et al., [7]	31	A,M	RMS	USO+CT	-	-	-	Disease free at 18 months
Sahoo TK et al., [8]	27	A,M	Bone, GI epi	USO+CT	-	-	-	-
Papler T et al., [9]	70	M	RMS	TAH BSO	Widespread	7m	-	-
Rekhi B et al., [10]	17	M	RMS, skeletal M	USO	Omentum	1 yR	CT	
Choughle A et al., [11]	23	A, M	RMS hepatocytes	USO	-	-	-	-

[Table/Fig-4]: Reported cases of poorly differentiated ovarian sertoli-leydig cell tumours with mesenchymal heterology.
V = virlization A= amenrrhoea, M=abdominal mass, USO = Unilateral salpingo-ophorectomy, TAH with BSO= Total abdominal hysterectomy with bilateral sapingoophorectomy, CT = Chemotherapy, SX =surgery Skeletal M=Skeletal muscle, GI epi=Gastrointestinal epithelium, RMS=rhabdomyosarcoma

ranged from 11 -70 years, most patients were young females which was similar to our case. The commonest clinical presentation was the presence of rapidly growing abdominal mass. A 7/23 patients presented with features of virilization [2,5] and 9/23 patients presented with amenorrhoea [2,7,8,11]. Our patient presented with rapidly increasing abdominal mass and secondary amenorrhoea. The occurrence of mesenchymal components is often associated with extraovarian spread, recurrence and aggressive behaviour. In our literature review, 14/23 patients presented with recurrence [2,5,9,10] and 10/23 died [2] inspite of adjuvant chemotherapy. less cellular and resembles foetal-type cartilage [2]. Malignant Mixed Mullerian Tumour (MMTA) is ruled out due to absence of carcinomatous component and Epithelial Membrane Antigen staining (EMA) [2]. Patients of PDSCLT are young and present with a progressive abdominal enlargement with symptoms of virilization which gives a clue about its origin. Microscopically our case was initially diagnosed as a teratoma due to the presence of cartilage and retiform areas which were mistaken for vascular channels. However, focal areas showed sertoli leydig cells which were confirmed on IHC. IHC is thus an indispensible diagnostic

tool in these cases. Positive staining with Inhibin alpha, calretinin, cytokeratin and EMA negativity helps in confirming the diagnosis. Optimal treatment for these tumours is hysterectomy with bilateral salpingo oophorectomy. However, due to rarity of the tumour; there are no standardised protocols for adjuvant chemotherapy [10]. Prat J et al., stated that the prognosis of SLCTs with mesenchymal elements is as poor as primary ovarian sarcomas and hence adjuvant chemotherapy is imperative for all disease stages [2]. Our literature review also highlights the aggressive behaviour of these tumours. Hence, our patient was advised adjuvant chemotherapy after right ovarian cystectomy.

CONCLUSION

Sertoli Leydig cell tumours with mesenchymal heterology are very rare and should be included in the differential diagnosis of a cystic teratoma because of their morphological similarities but completely different therapeutic implications. Extensive tumour sampling is imperative as sertoli leydig cell component may be missed and these tumours have aggressive behaviour and recurrence potential.

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