Malaysian J Pathol 2015; 37(2) : 145 – 147

CASE REPORT

A rare case of combined placental site trophoblastic tumour with mature cystic teratoma and mixed germ cell tumour in the testis

LEOW Wei Qiang, LOH Hwai Liang Alwin, LEE Lui Shiong* and GOH Chin Hong Ronald

*Departments of Pathology and *Urology, Singapore General Hospital*

Abstract

A 20-year-old male presented with persistent right testicular pain. Following ultrasound detection of testicular nodules and biopsy for intraoperative consultation which yielded germ cell tumour, he underwent radical orchidectomy. A predominantly whitish cyst and a lobulated, variegated nodule were identified. Histology showed a mature cystic teratoma with a focus of infiltrative epithelioid cells containing eosinophilic cytoplasm and pleomorphic nuclei, invading ectatic vessel wall associated with fibrinoid change. These cells were positive for cytokeratin, human placental lactogen and inhibin, while negative for Melan-A, p63 and alpha-fetoprotein, consistent with placental site trophoblastic tumor (PSTT). The variegated nodule was a mixed germ cell tumour composed of embryonal carcinoma and immature teratoma. Aside from choriocarcinoma, primary trophoblastic tumors such as PSTT, which are derived from intermediate trophoblasts, are extremely rare in the testis. Aside from a case of pure testicular PSTT, 2 other cases have been described in association with germ cell tumour, of which one is a mature teratoma with PSTT that demonstrated gain of chromosome 12p. The other presented with PSTT in retroperitoneal recurrence of a testicular mixed germ cell tumour. We discussed the features of this tumour in the testis and important differentials in its diagnosis.

Keywords: testicular tumour, mixed germ cell tumour, placental site trophoblastic tumour

INTRODUCTION

Trophoblastic tumours of the testis are rarely reported.[1-3] Placental site trophoblastic tumour (PSTT) is one such rare tumour. We are aware of only two reported cases: one occurred in pure form and the other comprised of PSTT occurring in combination with teratomatous components.[2] We report a rare case of combined PSTT with mature cystic teratoma and mixed germ cell tumour in the testis.

CASE REPORT

A 20-year-old gentleman presented with right-sided testicular pain of 5 days duration. When a scrotal ultrasound scan revealed suspicious nodules within the testis, he underwent a radical orchidectomy.

Pathology

Gross examination showed two circumscribed nodules in close proximity. Histology of the smaller nodule featured a mixed germ cell tumour with embryonal carcinoma and immature teratoma (Fig. 1A). The larger nodule revealed a mature cystic teratoma with a focal population of poorly cohesive epithelioid cells infiltrating the fibromuscular stroma (Fig. 1B). Notably, they invaded and replaced the vessel wall with fibrinoid material (Fig. 1C). These epithelioid cells showed abundant dense eosinophilic cytoplasm and pleomorphic, hyperchromatic nuclei with frequent mitoses.

They showed patchy strong cytoplasmic reactivity for human placental lactogen (hPL) and were immunonegative for p63, in keeping with implantation site intermediate trophoblastic differentiation.[4] Based on these findings, it was concluded that there was a mature cystic teratoma with admixed PSTT and an adjacent nodule of mixed germ cell tumour comprised of embryonal carcinoma and immature teratoma.

Address for correspondence: Dr Leow Wei Qiang. Pathology Department, Singapore General Hospital, 20 College Road, Academia, Level 10, Diagnostics Tower, Singapore 169856. Email: leow.wei.qiang@sgh.com.sg

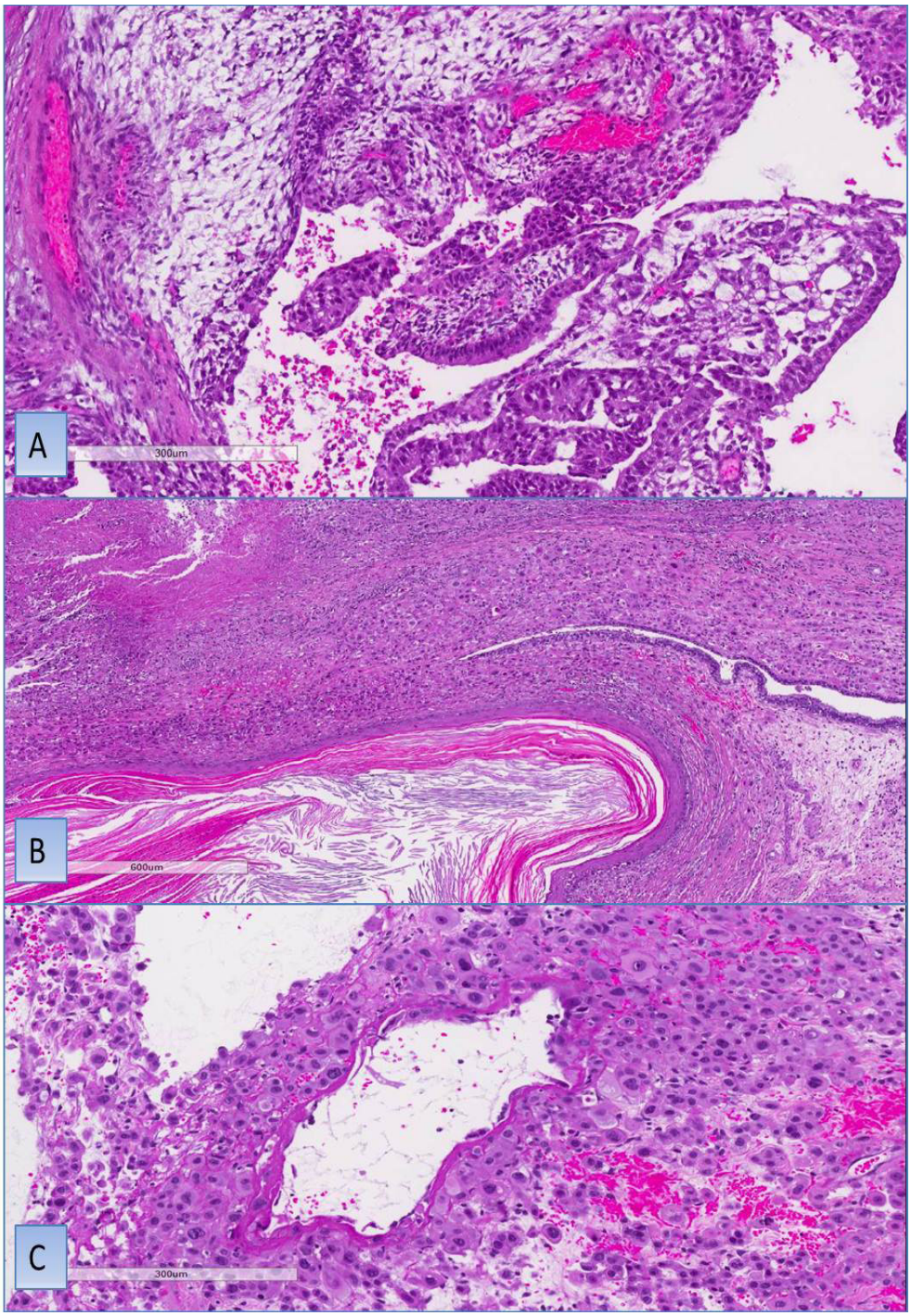

Fig. 1: Histological images of testicular tumour (H&E). (A) Mixed germ cell tumour with embryonal carcinoma component (X100). (B) Epithelioid cell infiltrating fibrous stroma (X40). (C) Epithelioid cells invading and replacing vessel wall with fibrinoid material deposition (X100).

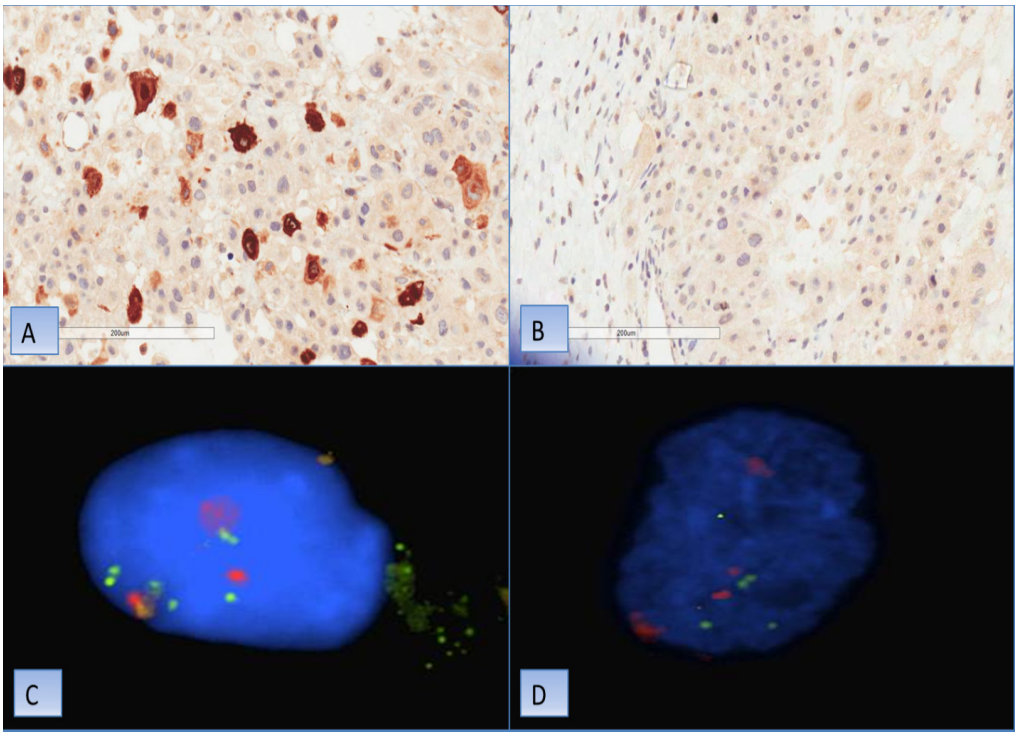

Fig. 2: Immunohistochemical and FISH images of epithelioid cells. (A) Focal immunopositivity for hPL (X200). (B) Immunonegativity for p63 (X200). (C and D) Dual-colour FISH analysis with centrometric orange probe for chromosome 12 and green probe for 12p. Two nuclei with gains of isochromosome 12p with green signals arranged in doublets.

DISCUSSION

The close differential diagnoses of the PSTT component include choriocarcinoma and epithelioid trophoblastic tumour (ETT). Choriocarcinoma typically contains both cytotrophoblasts and multinucleated syncytiotrophoblasts.[1,2] In addition, cytotrophoblasts are hPL negative while intermediate trophoblasts are hPL positive.[1] Although ETT arises from intermediate trophoblasts, they are of chorionic-type versus implantation site-type in PSTT. Hence ETT is hPL negative and p63 positive, while PSTT is hPL positive and p63 negative.[4]

As the testis is an unusual primary site for PSTT, we performed fluorescence in-situ hybridization (FISH) to analyze for gain of chromosome 12p, a nonrandom chromosomal abnormality characteristically identified in germ cell tumors.[5] Dual-color FISH was done using a centromeric orange probe for chromosome 12 and locus-specific green probe for 12p. There is a gain of 12p in relation to centromere chromosome 12; with many doublet signals, representing isochromosome 12p (Fig. 2).[5] Our FISH result confirms a germ cell origin to the placental site trophoblastic tumor.

ACKNOWLEDGEMENT

This paper was presented as a poster at the RCPA Pathology Update 2014 and the poster abstract was published in the RCPA journal *Pathology*. The authors state that there are no conflicts of interest to disclose.

REFERENCES

1. Ulbright TM, Young RH, Scully RE. Trophoblastic tumors of the testis other than classic choriocarcinoma: "monophasic" choriocarcinoma and placental site trophoblastic tumor: a report of two cases. Am J Surg Pathol. 1997; 21(3): 282-8.
2. Petersson F, Grossmann P, Vanecek T, *et al*. Testicular germ cell tumor composed of placental site trophoblastic tumor and teratoma. Hum Pathol. 2010; 41(7): 1046–50.
3. Suurmeijer AJ, Gietema JA, Hoekstra HJ. Placental site trophoblastic tumor in a late recurrence of a nonseminomatous germ cell tumor of the testis. Am J Surg Pathol. 2004; 28(6): 830–3.
4. Allan RW, Algood CB, Shih IeM. Metastatic epithelioid trophoblastic tumor in a male patient with mixed germ-cell tumor of the testis. Am J Surg Pathol. 2009; 33(12): 1902–5.
5. Cossu-Rocca P, Zhang S, Roth LM, *et al*. Chromosome 12p abnormalities in dysgerminoma of the ovary: a FISH analysis. Mod Pathol. 2006; 19(4); 611–5.