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Malignant Testicular Tumour in an infant

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An infant of in-vitro fertilization (IVF) product presented with right testicular swelling since birth. The patient underwent right groin exploration and orchidectomy. Histology confirmed malignant teratoma. Literature has been reviewed for the incidence of malignancy in IVF babies.

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The testicle is an uncommon site of teratomas in infancy and childhood. Teratomas characteristically contains elements derived from all the three embryonic germ layers[1]. Testicular teratomas in prepubertal children are distinct from adult in their pathological feature and biologic behaviour. We document a case of infant produced by IVF who had a teratoma of right testis.

The Case

Six month old infant, a product of IVF by normal delivery, presented with right scrotal swelling since birth. He was referred to the hospital suspected of a right hydrocele. The family history was negative for any cancers. On examination, there was right scrotal swelling, firm in consistency, non tender and negative for transillumination test. Groin lymph nodes were not palpable bilaterally. Laboratory investigations for complete blood count, urea, electrolytes, serum creatinine and liver function tests were within normal limits. Alpha fetoprotein was 271 μg/l (N: 0-15 μg/l) and the other tumor markers (Ca 25, Ca 15-3, Ca 19-9, CEA and β-HCG) were within normal levels. Scrotal and pelvic ultrasound showed homogeneous right testicular mass with no evidence of lymph node enlargement.

MRI showed gross right testicular enlargement which was four times as compared to the left, both spermatic cords appeared normal and no obvious lymphadenopathy in the

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retroperitoneum. Patient underwent right testicular frozen section followed by orchidectomy as section proved malignancy. Right testis weighed 16 grams and measured 3.5 x 2.5 cms. Slicing did not reveal any cystic areas. Cut surface appeared greyish smooth. Microscopy showed aggregates and clusters of immature neuroepithelial tubular structures interspersed with primitive embryonal stroma (Fig.1). Rosettes were noted and frequent mitotic figures, admixtures of mature and immature tissues representing mainly endo and mesoderms were also seen. Based on morphologic appearances, a diagnosis of Grade III immature teratoma involving the testis was given. Two weeks after surgery, alpha fetoprotein dropped to 52 μg/l. Right groin swelling was noted 4 months after surgery, which was excised suspecting recurrence or involvement of lymph node. The mass measured 2.8 cms in it's maximum diameter. Cut surface revealed cystic gelatinous appearance. Microscopically, it showed tell-tale features of mature cystic/ solid tetatoma. Few lymph nodes adjacent to the mass showed reactive changes only. One week later, alpha fetoprotein level was within normal limits.

Figure 1. Micrograph showing immature position of the teratoma

DISCUSSION

Testicular tumors in infants and children are uncommon and account only 1-2% of all pediatric solid tumors[2].

Testicular tumours classification includes germ cell tumors (yolk sac tumor, teratoma, teratocarcinoma and seminoma), gonadal stromal tumors (Leydig and Sertoli cell tumors, and intermediate forms), gonadoblastomas, tumors of supporting tissue, lymphomas and leukemias, tumor-like lesions, secondary tumors and tumors of adnexa[3].

Teratomas are heterogeneous group of tumors which may be benign, potentially malignant, or malignant depending on the evolutionary characteristics and site or organ of origin[4,5]. Testicular teratomas in prepubertal children are distinct from adult testicular teratomas as well as from teratomas located elsewhere in the body, both with respect to their pathological features and biological behavior[5,6].

The sacrococcygeal region and ovary appear to be the most common sites of origin. Other rare sites of origin are retroperitoneal, mediastinal, abdominal, parotid and testicular[4]. Testicular teratoma rarely presents before one year of age[1]. Alpha-fetoprotein has been detected in the blood of two-thirds of children with malignant teratoma but not in benign teratoma[7]. The overall mortality for children with mature teratomas was significantly less than for those with immature tumors[1].

In the era of in-vitro fertilization (IVF), the only suggested fetal complications have been spina bifida and transposition of the great vessels[8]. The association between IVF and pediatric cancer has been described in sporadic case reports. However, tumors arising in the first months of life are likely to be related to factors associated with conception or pregnancy. The procedure of IVF is prone to carcinogenic effect due to hormonal enhancement of ovulation, preservation of pregnancy or micromanipulation on germ cells and the fertilized ovum[9].

CONCLUSION

Malignant testicular teratoma is very rare in infants. In a review of literature, few reports have been found describing the association between product of IVF and malignancy. However, no report has been found about malignant testicular teratoma in this group.

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