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Case Report

Fertility preservation in non-seminomatous germ cell tumor: a case report

Nayana Patel[1]*, Niket Patel[2], Molina Patel[2], Yuvraj Jadeja[2], Harsha Bhadarka[3], Harmi Thakkar[4]

[1]Medical Director and Infertility Specialist, [2]Consultant, [3]IVF Lab Director, [4]Research Assistant, Akanksha Hospital and Research Institute, Anand, Gujarat, India

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***Correspondence:**
Dr. Nayana Patel,
E-mail: nayana@ivf-surrogate.com

ABSTRACT

Testicular germ cell tumors (TGCTs) are the most common malignancy in young men in their peak fertility years. It can intrinsically and permanently affect fertility potential of an individual. Clinicians are advised to offer Fertility Preservation before initiating the treatment. We present one such case of presence of Neoplasm in testis, where semen was cryopreserved before operating it for fertility preservation and biological pregnancy was achieved. On further investigations, presence of neoplasm on left testis was diagnosed. However, neoplasms of the testes are unique in that way they affect men at a young age and also have a high survival rates. Cryopreservation of ejaculated or surgically retrieved sperm is currently the only established method of fertility preservation for post-pubertal man. The incidence as well as rates for testicular cancers have remained relatively low and if presented early on, can be cured and has good survival rates. Fertility awareness must be raised amongst the oncologist, gynecologist and patients.

Keywords: Testicular cancers, Fertility preservation, Testicular germ cell tumors, Non-seminomatous tumors

INTRODUCTION

The rates as well as the incidence of testicular carcinoma and male infertility have increased simultaneously during recent decades. Overall, the incidence of testicular Germ cell tumors (GCTs) is low, occupying 1-2% of all male malignancies in the 15-35 years age group it is the most common cancer.[1] It is observed that 95% the cancer is GCT and 3% of it is bilateral.[2] Due to modern treatment modalities available, the survival rates have been reported to be greater than 90% especially in the cases of seminomotous germ cell tumors.

Testicular (GCTs) accounts for the vast majority (98%) of testicular cancers. For treatment purpose, TGCTs are grouped into two broad categories. These are seminomas and non seminomas.

Pure seminoma may be associated with raised blood levels of human chronic gonadotropin (HCG) which may also be raised in non seminomatous germ cell tumor, however, raised alfa-fetoprotein would suggest a non-seminomatous origin.

There are different types of Nonseminomatous GCTS (NSGCTs): choriocarcinoma, embryonal carcinoma, teratoma, yolk sac tumor, stromal tumors, leydig cell sertoli cell tumor.[3]

Testicular tumors usually present as a nodule or painless swelling of one testicle, which maybe noted incidentally by the patient or by the sexual partner.[4] It is noticed that 30-40% of patients complain of a dull ache or heavy sensation in the lower abdomen, perianal area or Scrotum whereas acute pain is the presenting symptom in 10% of cases.

It can be marked that GCTs may present extra gonadally in the retroperitonium or mediastinum in a small percentage of cases. When the tumor is non-seminimas they often have raised AFP and / or HCG levels. High AFP is a clear sign of nonseminomas and patient should be managed accordingly. Tumor markers are checked before orchiectomy and repeated after 7 days after orchiectomy. Testicular sonography of the affected testis and the contralateral tesis should be conducted to rule out bilateral disease. Abdominal Computed tomography (CT) should be done to look for retroperitoneal and pelvic LN enlargement.

Thoracic CT scan is indicated only in advanced disease. MRI of the central nervous system is needed only in advanced stages or with symptoms. Bone scan should be conducted in case of indirect indicators. Positron emission tomography scanning again should be done on in stage II/III disease so that the correct treatment strategy is chosen, especially in case of a residual tumor. If borderline LN enlargement during the evaluation is observed (normal <1 cm), the CT scan should be repeated 6 weeks later before deciding on the definitive treatment strategy (radio/chemotherapy). If imaging is normal, the patient should be monitored for the decline of tumor marker until normalization. If the tumor markers remain high or plateau one could make a diagnosis of disseminated disease.

Fertility preservation in the era of assisted reproductive technology is an important issue in a number of situations. If the man desires a child, a semen analysis with ejaculate or testicular sperm cryopreservation should be advised before starting chemotherapy or radiotherapy. Many of the surgical treatment impairs the capability to ejaculate and it has been observed that 80% of cases develop retrograde ejaculation. Currently, the survival rates of testicular tumors have reached as high as 95% (LH).[5] As the number of young patients are more, every consequence to survivor should be taken in consideration before deciding the plan of action for the management of the tumor.

CASE REPORT

A 34 years old male and 31 years old female couple approached our clinic XXXX immediately after the husband and was diagnosed with testicular cancer. Initially, patient experienced painand swelling at the scrotal region. Later, the patient underwent MSCT scan of abdomen with pelvis. The study presented the evidence of a few subcentimeter - sized lymphnodes in preaortic and left paraaarotic region. Other than that, no evidence of focal liver lesion or asthetic were observed.

On further investigations, presence of neoplasm on left testis was diagnosed. The tumor markers was follows:

The value for tumor marker- LDH: 791.0 U/L, AFP: 9.3 ng/ml, B- HCG: <1.20 miU/ml.

Infertility has been reported in 50-70% of patients with testicular carcinoma of whom 15% exhibit azoospermia, upon checking the patient's sperm count reports showed very occasional sperm count with poor motility. Therefore, 6 vials of sperm were frozen.

As the patient was advised left radical inguinal orchiectomy at the earliest. Detailed counselling of the couple with regard to the survival rates and future fertility options was given with fertility preservation in form of semen freezing advised.

Patient underwent left radical inguinal orchiectomy and the histopathology report showed: multiple sections from the testis reveal a non-seminomatous germ cell tumor composed of embryonal carcinoma and small foci of yolk sac tumor. The tumor cells express Cytokeratin, CK – 7 (dim), CD30 and Glypican S and are immune-negative for EMA and b- HCG. The core cut margin is involved by tumor.

Once the husband was disease free, they were seeking for fertility options. They opted for IVF treatment. IVF was carried out as per standard procedure.

After successful trigger, all the 04 day 3 embryos with grade C were transferred in the patient, which resulted into positive b-HCG in first cycle itself.

Table 1: Information on number of eggs retrieved and grade of embryos. method of fertilization.

No. of eggs retrieved	Grade		
	M2	M1	GV
19	14	04	03
ICSI was done on 16 eggs: 04 eggs Fertilised			

DISCUSSION

With advances in the treatment options available improvement in outcomes, the focus has shifted from cancer free age to also reduction in treatment related effects on gamete tissues. Due to the unpredictable course of disease progression fertility preservation is always a safe backup option even in the earliest of disease. Surgery treatment in the form of Radical inguinal orchiectomy is the treatment of choice for testicular tumor. Chemotherapy/ radiotherapy would depend on the lymph node status presence or absence of metastasis.[6] The prognosis would depends on the type especially between seminoma or NSGCTS or both vastly differ in their behaviour. Seminomas are usually localized and tough in early stage and have less propensity of distant spread with sensitivity to radiotherapy. On the other hand, NSGCTS are more radioresistant. Tumor markers play a vital role on initial diagnosis and also in following prognostic value.[7] Follow up of men with seminoma in mostly by examination or by imaging, but for NSGCTS serum b-hCG and AFP is the most sensitive means of detecting early relapse. As the peak age demographic that is affected

TGCT in between 15 to 35 years. Fertility should be one on the major concerns but also unfortunately easily forgotten disease that leads to subfertility and sterility due to gonad removal or permanent damage to germ cells adjuvant therapy. Although semen freezing is not a novel procedure, but the right timing to freeze the semen after the diagnosing of condition should be taken cosnidered. Generally, people are in stress to operate, as they feel Cancer should be treated as soon as possible. In this case report it can be seen that the patient under stress can get operated after preserving the semen and can achieve a biological pregnancy.

CONCLUSION

The incidence as well as rates for testicular cancer have remained relatively low and if majority of them presented in early stage within 5 years with survival rates of 98-99%. Orchiectomy is the primary approach and establishes the correct diagnosis. Tumor markers AFP and HCG levels should also be checked properly for identification of seminomas or non-seminomas. Fertility awareness among the patients must be raised. Options for fertility preservation should always be presented which includes: semen freezing, TESE and Freezinf and testicular tissue freezing. Fertility can be achieved with positive results.

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