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Case Report

A successful pregnancy outcome in a testicular cancer survivor: case report

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ABSTRACT

Testicular cancer is the most common cancer in young men. We report a successful pregnancy that was achieved by intracytoplasmic sperm injection (ICSI) using cryopreserved semen from a man with testicular cancer. He was treated for left testicular mixed germ cell tumor with left radical orchiectomy followed by chemotherapy. Three years post chemotherapy, the couple had two successive failures of intrauterine insemination (IUI) with cryopreserved semen. The couple then underwent Assisted reproduction with ICSI. Ten oocytes were retrieved following stimulation of which six oocytes fertilized and progressed. She had transfer of two healthy embryos and the remaining four embryos cryopreserved. Singleton pregnancy was achieved and she delivered a healthy girl baby at 38 weeks of gestation. Assisted reproduction with ICSI is a boon to the male patients with cancer and offers them a chance of fathering their own biological offspring.

Keywords: Cryopreserved semen, Intracytoplasmic sperm injection, Testicular cancer

INTRODUCTION

Testicular cancer is the most common cancer in young men.[1] Its incidence is increasing worldwide. Testicular cancer is known to impair the semen quality significantly.[2] The adjuvant therapy like chemotherapy and radiation therapy further alters the semen parameters. Fertility preservation and reproductive health are the two major issues in this era of advanced health care facilities. Semen cryopreservation has to be offered for all these young men with testicular malignancy prior to surgery or at least prior to radiation therapy or chemotherapy so as to provide them with the possibility of fathering a biological offspring.

METHODS

26 years old unmarried male was referred to our Assisted Reproduction unit in 2007 for semen cryopreservation. He underwent left radical orchiectomy for mixed germ cell tumor of testis Stage II b five days ago and was planned for postoperative chemotherapy. He was counselled and 12 vials of semen were collected and cryopreserved. The prefreeze semen analysis showed a count of 18 X 10^6 spermatozoa/ml with 40% motility. He underwent chemotherapy with Bleomycin, Etoposide and Cisplatin (BEP) regimen for four cycles.

He was on surveillance with no evidence of recurrence. He visited us four years later, after his marriage in 2011 in view of subfertility. His semen analysis was suggestive of severe oligospermia. His wife was investigated and found to be normal. She underwent two cycles of ovulation induction with intrauterine insemination (IUI) from the cryopreserved semen. It was unsuccessful and the couple was counselled for ICSI as we had only one vial of cryopreserved semen left behind.

Moreover, the post thaw motility and recovery of spermatozoa during IUI was poor. The couple returned back in 2015 for treatment. Subsequent semen analysis showed severe oligoasthenoteratozoospermia.

The couple underwent ICSI using cryopreserved semen after a written informed consent. She was stimulated with Follicle stimulating hormone 225IU and Gonadotrophin-releasing hormone antagonist 0.25mg was added on day six of stimulation. When the dominant follicles reached a mean diameter of 18-20 mm, Recombinant human chorionic gonadotrophin injection 250 mcg was given. Ultrasound guided Oocyte retrieval was carried out 36 hours later and ten oocytes were retrieved.

Semen analysis on the day of oocyte retrieval showed a count of less than 1 million with no motility. So the frozen semen sample was thawed. Post-thaw semen analysis revealed a count of 3 x $l0^6$ ml with 2% motility.

After denudation of ten oocytes, seven were in metaphase II and these were injected using micromanipulation technique. Single spermatozoa was injected into the cytoplasm of each oocyte. Following this six oocytes fertilized and all six cleaved. On day three, embryos were of 8 cell stage grade1 morphology. Two fresh embryos were transferred and she received luteal support with vaginal progesterone for two weeks. The serum HCG concentration was 734 m IU/ml 16 days later. Ultrasound done at six weeks showed a single viable pregnancy. Her pregnancy proceeded uneventfully and she delivered vaginally a healthy girl baby at 38weeks of pregnancy.

DISCUSSION

Testicular malignancy is common among men of reproductive age. It has good prognosis and survival with timely management. It is mandatory to counsel the patient regarding fertility preservation prior to treatment since majority are either adolescence, teens or of the reproductive age group. The treatment by itself could make them infertile. Many patients with testicular cancer have oligospermia or sperm abnormalities prior to therapy. Various mechanisms can contribute to semen impairment in testicular malignancy such as previous testicular disorders, tumor histology, stage of the disease and orchiectomy.[3] Damage of the spermatogenesis after treatment largely depends on the type of therapy and the gonadal function pretreatment. Norwegian population based study observed a 30% decrease in fertility among the cancer survivors when compared with the normal population.[4]

The lowest fertility rates have been observed among the patients who were treated with chemotherapy prior to radical orchiectomy and retroperitoneal lymph node dissection.[5] Both chemotherapy and radiation has measurable effects on number, motility, morphology, and or DNA integrity. Patients may also be rendered oligospermic or azoospermic by the gonadotoxic agents, which act on the proliferating cells. Drug like cisplatin, that is widely used for testicular cancer increases the risk of azoospermia. It has been reported that increase in the cumulative alkylating agent dosage is associated with the inability to conceive.[6] Significant sperm DNA damage and low DNA compaction remained as long as 24 months posttreatment.[7]

In this era of Assisted reproduction, appropriate counseling about fertility preservation techniques should be readily offered to all young cancer patients so as to provide them an opportunity to parent their own biological offspring. Cryopreservation of semen is recommended prior to any treatment modality in testicular cancer. Pre-freeze semen quality has an impact on male fertility after treatment. Cryopreserved sperm may be used for IUI, IVF or ICSI. However, the freeze thawing process used for cryopreservation can cause impaired sperm motility. Clinical pregnancy following IUI with cryopreserved semen is very low.[8] With advances in ART, particularly ICSI, the problems of low sperm numbers and poor motility has been overcome.[9] ICSI requires a minimal number of spermatozoa, and has a high fertilization rate. We chose ICSI to treat this couple following failure with IUI as we had only 1 vial of semen left behind.

Many men become azoospermic following radiation or chemotherapy. However, partial recovery of spermatogenesis may occur within 2 years of completion of chemotherapy and may continue to improve thereafter.[10] A number of factors like the type of cancer, pretreatment fertility potential, treatment regimen may influence the time for recovery of sperms and its quality.[11] Among the cancer survivors, some are successful in achieving biological conception, although many have more difficulty compared to the general population or those in active surveillance.[12]

CONCLUSION

The oncology care providers mainly focus on the survival following malignancy. However the patients of reproductive age find infertility as one of the most difficult components of their disease and treatment. It is vital to address the impact of malignancy and its effect on fertility and sexual health at the time of diagnosis. The patient needs to be referred to a fertility specialist prior to starting any treatment Semen cryopreservation should be routinely recommended in post pubertal boys and adult men prior therapy for cancer as this can preserve their future paternity.

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REFERENCES

1. Hayes-Lattin B, Nichols CR. Testicular cancer: a prototypic tumor of young adults. Semin Oncol. 2009;36(5):432-8.
2. Dialadat H, Burner E, Parikh PM, Kay DB, Hays K. The association between testis cancer and semen abnormalities before orchiectomy: a systematic

review. J Adolesc Young Adult Oncol. 2014;3(4):153-9.
3. Rives N, Perdrix A, Hennebicq S, Sais-Magnan J, Melin MC, Berthaut I, et al. The semen quality of 1158 men with testicular cancer at the time of cryopreservation: results of the French National CECOS Network. J Androl. 2012;33:1394-401.
4. Howell S, Shalet S. Gonadal damage from chemotherapy and radiotherapy. Endocrinol Metab Clin North Am. 1998;27:927-43.
5. Ping P, Gu BH, Li P, Huang YR, Li Z. Fertility outcome of patients with testicular tumor: Before and after treatment. Asian J Androl. 2014;16:107-11.
6. Colpi GM, Contalbi GF, Nerva F, Sagone P, Piediferro G. Testicular function following chemo radiotherapy. Eur J Obstet Gynecol Reprod Biol. 2004;113:S2-6.
7. Howell SJ, Shalet SM. Spermatogenesis after cancer treatment: damage and recovery. J Nat Cancer Inst Monogr. 2005;34:12-7.
8. Scammell GE, White N, Stedronska J, Hendry WF, Edmonds DK, Jeffcoate SL. Cryopreservation of semen in men with testicular tumour or Hodgkins disease: results of artificial insemination of their partners. Lancet. 1985;2:31-2.
9. Ragni G, Somigliana E, Restelli L, Salvi R, Arnoldi M, Paffoni A. Sperm banking and rate of assisted reproduction treatment: insights from a 15 year cryopreservation program for male cancer patients. Cancer. 2003;97:1624-9.
10. Spermon JR, Kiemeney LA, Meuleman EJ, Ramos L, Wetzels AM, Witjes JA. Fertility in men with testicular germ cell tumors. Fertil Steril. 2003;79:1543-9.
11. Matos E, Skrbinc B, Zakotnik B. Fertility in patients treated for testicular cancer. J Cancer Surviv. 2010;4:274-8.
12. Brydoy M, Fossa SD, Klepp O, Bremnes RM, Wist EA, Larsen TW, et al. Paternity following treatment for testicular cancer. J Natl Cancer Inst. 2005;97:1580-8.

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