(Fig. 3d–f). These findings suggested the presence of GCNIS that has a distinct histologic pattern preceding the development of seminomatous and non-seminomatous TGCT might have existed only in the right testis when performing the micro-TESE.[3,4] A previous article described how of 534 consecutive male patients with fertility problems who underwent a bilateral testicular biopsy, 13 (2.4%) showed GCNIS.[5] However, a study surveying the proportion of GCNIS that progress to an invasive tumor in patients with infertility is lacking. Considering the clinical course of this case, a follow-up study based on the pathological findings of these rare specimens obtained in micro-TESE has been initiated. It is hoped that the results of this trial will be reported in due course.

Conclusion

In Japan, men who seek an evaluation for infertility may be more likely to develop TGCT. Careful follow-up might be necessary when GCNIS is recognized in specimens of micro-TESE.

Conflict of interest

The authors declare no conflict of interest.

Approval of the research protocol by an Institutional Reviewer Board

The protocol for this research project has been approved by a suitably constituted Ethics Committee of the Nagoya City University Graduate School of Medical Sciences Institutional Review Board (#60-19-0234) and it conforms to the provisions of the Declaration of Helsinki.

Informed consent

Written informed consent was obtained from the patient for publication of this article and accompanying images.

Registry and the registration No. of the trial

Not applicable.

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Editorial Comment

Editorial Comment to Testicular seminoma arising from infertile testes 6 years after microdissection testicular sperm extraction

A risk of testicular cancer is increased in men with male factor infertility compared with the general population in western countries.[1] However, data on this risk in Asian countries are lacking. In this case report, Shimizu et al. reported a case report of testicular seminoma arising from right infertile testes 6 years after microdissection testicular sperm extraction (TESE).[2]

In the general population, the rate of testicular cancer is 1.30–4.30 per 100 000 males.[1] In this report, the author showed that 4 of 1398 patients who presented to the infertility outpatients department developed testicular cancer. This finding indicates that the risk of testicular cancer in men with male factor infertility may be increased in Japan. Although further real-world data in Japan are needed, clinicians should pay attention to the risk of testicular cancer when seeing patients with male infertility.

At the author's institute, testicular samples are routinely extracted from patients to evaluate infertility grade when performing micro-TESE. In this case report, immunohistochemistry showed that c-kit and placetal alkaline phosphatase (PLAP) positive cells were found in right testicular samples from micro-TESE. Contrary, such cells were not observed in the left testicular samples. These findings suggest the presence of germ cell neoplasia *in situ* (GCNIS) might have existed in the right testis 6 years before being diagnosed with testicular cancer. Testicular germ cell tumors are the most common solid tumor among adolescent and young adult males.[3] In the future, molecular biological experiments are expected to clarify the mechanism of testicular cancer carcinogenesis.

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Conflict of interest

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