

Case Report

Granulomatous Scrotal Lesion Suspicious of Malignancy: Likely due to Chronic Leak from Silicone Testicular Prosthesis

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Abstract

We report a rare case of granulomatous scrotal lesion, suspected of malignancy, likely due to chronic leak from silicone testicular prosthesis with intact prosthesis fibrous capsule. US and MRI are important for evaluating implant integrity, however, in our case neither modality demonstrated the typical signs, and we were unable to confirm the nature of the scrotal lesion until scrotal exploration and removal of the deformed prosthesis was performed.

Keywords: Testicular prosthesis; Scrotal lesion; Prosthesis leak and rupture; US and MRI.

Introduction

Testicular implants have been in use since 1941. They have been available for patients with various conditions resulting in absence of testicles in the scrotum, such as testicular atrophy and orchidectomy, in order to minimize psychological distress and to improve cosmetic outcomes [1,2].

The quality of testicular prostheses has improved considerably over time, however, there remains risks associated with these implants. Testicular prosthesis rupture is very rare, contrary to breast implants rupture [2].

We report on a rare case of granulomatous scrotal lesion suspicious of malignancy most likely due to a chronic testicular prosthesis leak which may be caused by repeated chronic trauma (cycling).

Case presentation

A 54-year-old male presented to the urology clinic with right scrotal pain and swelling. He has a history of bilateral testicular atrophy in childhood and bilateral testicular prosthesis placement at age of 14 years without orchidectomy and has been on testosterone replacement since then. He denied any scrotal trauma but he is a keen cyclist.

Clinically, he had a small and firm lump in the lower part of the right scrotum. Both testicular prostheses were palpable and in good position in the scrotum. Blood and urine tests including AFP, Beta-HCG, LDH, and PSA were unremarkable. Scrotal Ultrasound showed bilateral testicular prosthesis, normal in position and in consistency. In the right scrotal area, there was a heterogenous solid cystic mass, inferior and medial to the lower pole

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of the testicular prosthesis, with no internal vascularity, possibly sinister given the history of testicular atrophy (Figure 1).

We arranged scrotal and pelvic MRI with contrast which revealed oblong space-occupying lesion measuring 3 cm, with significant internal enhancement, indenting the inferomedial aspect of the right prosthesis (Figure 2). This mass had features suggestive of a chronic process such as a granuloma, however due to atypical features, it was difficult to exclude a malignant process. In view of low suspicion of malignancy, we arranged CT chest, abdomen, and pelvis with contrast, which showed no abnormalities.

Right scrotal exploration, with removal of the right testicular prosthesis and excision of the fibrous capsule and right scrotal cystic lesion was performed. The prosthesis appeared deformed with loss of volume, suggestive of chronic leak, likely from the lower pole fixation point (Figure 3). The right atrophic testis was seen in the upper part of the right scrotum and right orchidectomy was performed.

Histology of the excised cystic structure and fibrous capsule confirmed haemorrhagic granulomatous tissue, surrounded by fibrin. Interestingly, histology of the excised testis confirmed atrophic testicular tissue with granulomatous inflammation and foreign-body type giant cells in the tunica vaginalis and spermatic cord (Figure 4). There was no evidence of malignancy in either cystic lesion or the atrophic testis.

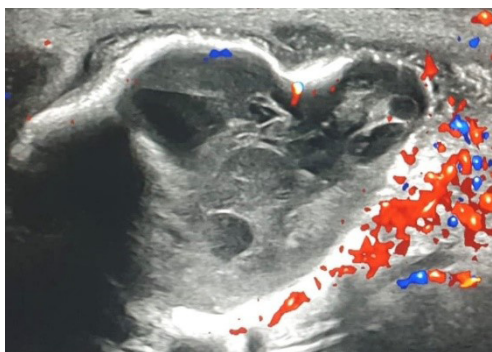


Figure 1: Ultrasound of the right-sided scrotal sac region showed presence of a mixed echogenicity space occupying lesion adjacent to the right testicular prosthesis with internal spill and cystic areas and showed minimal internal and some peripheral vascularity. There was a calcified curvilinear rim around the lesion.

Discussion

Complications of silicone gel testicular prosthesis include rupture of the prosthesis, scrotal contraction, migration into the inguinal canal, infection, pain, and rarely haematoma. Immune complications have also been documented [3]. Testicular silicone prosthesis rupture is a rare event in clinical practice, compared to breast silicone prostheses [1]. The scrotum offers more mobility, low tension position and low temperature, making them potentially less vulnerable to pressure injury [4].

We identified 9 cases of spontaneous testicular prosthesis rupture, reported in the English literature; most of which were not associated with trauma [1-5]. Spontaneous rupture of the silicone prosthesis was more commonly described as intra-fibrous capsule rupture [1-4]. We describe a granulomatous scrotal mass at the lower part of the testicular prosthesis. The pros-



Figure 2: MRI fat-saturated coronal T1-weighted postcontrast sequence showing the space occupying lesion with good internal enhancement of the central region and peripheral enhancement of the capsular region of the mass. There was thickening and enhancement also seen of the scrotal skin. The prostheses are clearly demarcated on both sides. The mass is indenting the right side prosthesis.



Figure 3: The testicular prosthesis appeared concave, suspicious of chronic leak, likely from the lower pole fixation point.

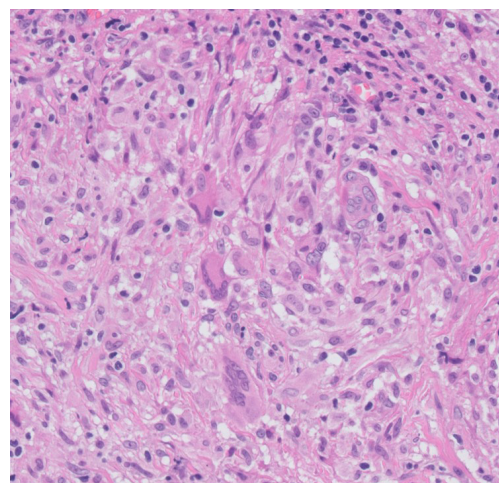


Figure 4: Higher magnification of marked granulomatous inflammation with foreign-body type giant cells in the spermatic cord and tunica vaginalis of the right atrophic testis.

thesis had a deformed shape, likely due to small chronic leakage which may cause by repeated chronic trauma (cycling). The fibrous prosthesis capsule was intact, however the histological findings of the atrophic testicular tissue with granulomatous inflammation and foreign-body type giant cells in the tunica vaginalis and spermatic cord, may suggest extra-capsular silicone migration. Similarly, others noted trans-capsular migration of silicone particles, even when the fibrous capsule was intact [1].

Previously documented intervals between placement of the prosthesis and removal due to rupture ranged between twelve and seventeen years [3,5]. In our case the patient had his testicular prosthesis 40 years prior to the exploration and removal of the prosthesis. To our knowledge, this is the longest period between insertion of testicular prosthesis and removal due to complications of the prosthesis.

The assessment of testicular prosthesis spontaneous rupture is based on clinical examination and on imaging findings seen on ultrasound in most of the cases. The “stepladder” sign seen on US occurs when silicone gel causes the elastomer shell to fold on itself and produce thin echogenic lines coursing parallel to the ultrasound probe surface [2]. In our case there were no ultrasound signs of prosthesis rupture as the prosthesis looked normal in position and consistency. The lack of the stepladder sign may be due to a small volume of silicone leak in our case.

MRI imaging offers superior diagnostic accuracy, usually demonstrating the Linguini sign with multiple curvilinear hypointense lines within the ruptured implant high signal intensity silicone filling [4]. In our case, the MRI did not demonstrate the linguini sign and showed signs suggestive of a granulomatous mass but did not rule out malignancy.

The prosthesis should be removed if rupture is suspected, to prevent the development of local inflammatory changes of the surrounding tissue and regional lymph nodes [2]. In our case we removed the testicular prosthesis and excised the scrotal mass due to the scrotal pain and low suspicion of possible malignancy.

Conclusion

Spontaneous silicone leaks from testicular prosthesis are rare. In our case there were no typical radiological findings of a prosthesis leak on either US or MRI. Therefore, scrotal exploration and removal of the deformed prosthesis was necessary to reach a diagnosis and definitive treatment.

Declarations

Consent: The director of the study obtained a verbal consent from the patient to publish this case report.

Conflict of interest statement: We declare that all authors have no financial and personal relationships with other people or organizations that could inappropriately influence (bias) this work.

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