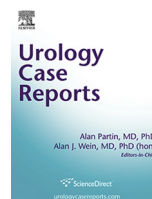


Contents lists available at [ScienceDirect](http://ScienceDirect)

# Urology Case Reports

journal homepage: [www.elsevier.com/locate/eucr](http://www.elsevier.com/locate/eucr)

## Oncology

# Splenogonadal Fusion Presenting Clinically and Radiologically as a Seminoma



William C. Croxford<sup>a,\*</sup>, Katherine L.M. Pfistermuller<sup>a</sup>, Fiona Scott<sup>b</sup>, Alvan J. Pope<sup>a</sup>

<sup>a</sup> Department of Urology, The Hillingdon Hospital, London, UK

<sup>b</sup> Department of Pathology, The Hillingdon Hospital, London, UK

## ARTICLE INFO

### Article history:

Received 11 November 2014

Received in revised form

21 June 2015

Accepted 24 June 2015

Available online 26 September 2015

### Keywords:

Testis

Splenogonadal fusion

Seminoma

## ABSTRACT

A case of discontinuous splenogonadal fusion, diagnosed pre-operatively as a testicular tumor, is described. The condition and potential pre-operative diagnostic methods are explored.

© 2015 The Authors. Published by Elsevier Inc. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

## Introduction

Splenogonadal fusion is a rare congenital anomaly which is formed when primitive splenic tissue fuses to mesonephric or gonadal tissue during embryogenesis<sup>1</sup>; however, the exact mechanisms of this fusion are still unknown. First described by Bostroem in 1883, less than 200 cases have been published in the literature.<sup>2</sup> The condition shows a predisposition for males<sup>2</sup> and it is more commonly found on the left testicle, although cases have been described on the right.<sup>3</sup> It can be classified into two separate types, continuous and discontinuous, although some argue that discontinuous fusion is actually a rare accessory splenic variant.<sup>1</sup> Continuous fusion involves continuity between the spleen and gonad, often in the form of a fibrous band with splenic nodules, and discontinuous fusion is where there is no such connection, that is, ectopic splenic tissue is present, as in this case report.

## Case report

An 18-year-old man presented to his GP with a small hard nodule at the upper pole of his left testis. He was subsequently referred to urology on the 2 week wait pathway. He had no significant past medical history, no history of undescended testes or orchidopexy and no recent testicular trauma. Serum AFP and  $\beta$ hCG

were normal with LDH being minimally raised at 513 U/L. An ultrasound of the left testis revealed a fairly well-defined, sub centimeter, slightly hypo-echoic, vascular mass at the left upper pole (Fig. 1), in keeping with the radiological appearances of a testicular tumor. On the basis of both the clinical and radiological findings, a left radical inguinal orchidectomy was performed with insertion of a testicular prosthesis. The operation was performed as a day case procedure without complications. Histology demonstrated the macroscopic appearances of a haemorrhagic, cystic, solid area extending into the tunica, measuring 7 mm in diameter. Microscopically, spleno-gonadal fusion was seen with splenic tissue corresponding to the macroscopic nodule observed (Figs. 2 and 3). An additional second small area of splenic tissue was noted adjacent to the main nodule. The remainder of the testis was normal, showing good spermatogenesis. No tumor was seen.

## Discussion

Based on clinical and radiological findings, this patient underwent the correct treatment. However, the subsequent histological findings showed no tumor, but a rare anatomical variant. The question remains as to whether these rare patients can be identified before unnecessary surgery. Given splenogonadal fusion often presents as a supposed new testicular lump, the distinction is very difficult to make clinically.

Steinmetz et al describe splenic scintigraphy as the imaging modality of choice in diagnosing splenogonadal fusion, possibly using SPECT if diagnosis is unclear.<sup>4</sup> It is difficult to recommend to

\* Corresponding author. Department of Urology, The Hillingdon Hospital, Pield Heath Road, London UB8 3NN, UK. Tel.: +44 07743452602.

E-mail address: [williamcroxford@doctors.org.uk](mailto:williamcroxford@doctors.org.uk) (W.C. Croxford).

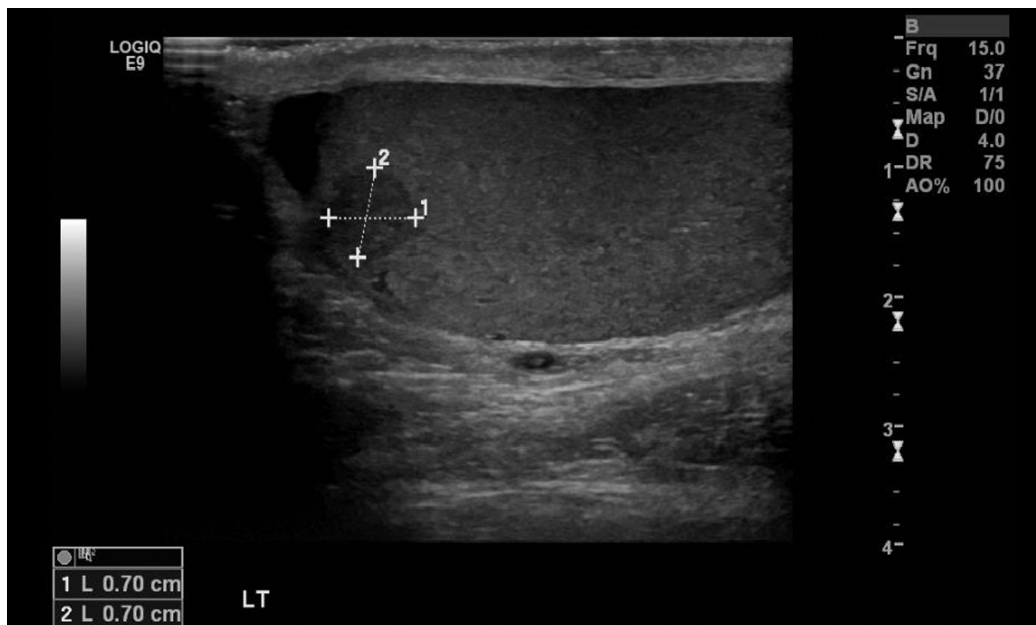


Figure 1. Ultrasound of left testis showing hypo-echoic mass of 7 mm.

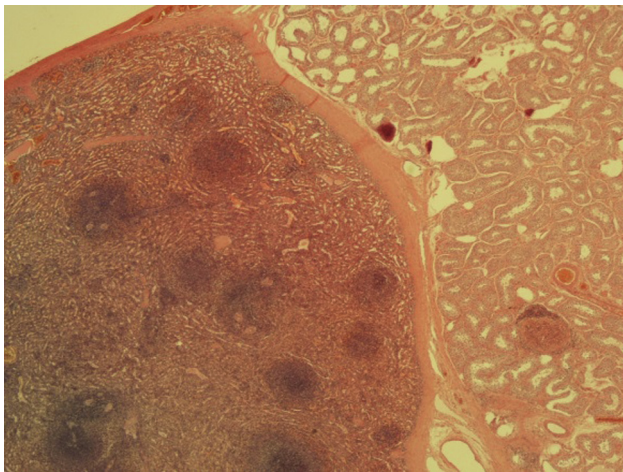


Figure 2. Low power hematoxylin and eosin. Splenogonadal fusion shown.

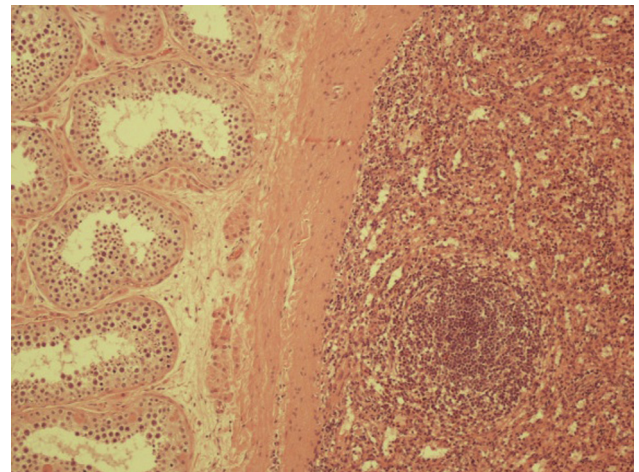


Figure 3. High power hematoxylin and eosin. Unremarkable tissue shown.

what extent this investigation should be carried out pre-operatively as testicular tumors are much more common than splenogonadal fusion, which in itself can be associated with tumors.<sup>5</sup> However, if surgeons do suspect a benign differential, it could also be a possibility to expose these tumors and seek frozen sections.

### Conclusion

Given what is known about splenogonadal fusion and testicular tumors, it may be worth considering splenic scintigraphy in left-sided, vascular testicular nodules, where the history of duration of onset is vague. Intraoperative frozen sections are also a possibility here. However, ultimately all testicular nodules must be considered malignant where clinical and radiological findings concur and radical orchidectomy must be performed.

### Conflict of interest

There was no conflict of interest expressed and full consent was obtained from the patient prior to publication.

### References

1. Le Roux PJ, Heddle RM. Splenogonadal fusion: is the accepted classification system accurate? *BJU Int.* 2000;85:114–115. <http://dx.doi.org/10.1046/j.1464-410x.2000.00410.x>.
2. Carragher AM. One hundred years of splenogonadal fusion. *Urology.* 1990;35:471–475. [http://dx.doi.org/10.1016/0090-4295\(90\)80097-7](http://dx.doi.org/10.1016/0090-4295(90)80097-7).
3. Brash J, Roscher AA. Unusual presentation on the right side of ectopic testicular spleen. *Int Surg.* 1987;72:233–234.
4. Steinmetz AP, Rappaport A, Nikolov G, et al. Splenogonadal fusion diagnosed by spleen scintigraphy. *J Nucl Med.* 1997;38:1153–1155.
5. Imperial SL, Sidhu JS. Nonseminomatous germ cell tumor arising in splenogonadal fusion. *Arch Pathol Lab Med.* 2002;126:1222–1225.