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Case Report

A case of triorchidism

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ABSTRACT

We present the case of an adolescent male who presented with a painless left scrotal lump. Investigations revealed a diagnosis of a supernumerary testicle or polyorchidism. In this case report we discuss the imaging findings of polyorchidism on different modalities. We examine how imaging can be used to diagnose and classify this condition. We also discuss the associated complications and the role of imaging in surveillance and management of this rare disorder.

Introduction

Polyorchidism is an extremely rare congenital abnormality of the genitourinary tract characterised by the presence of an additional testicle. Less than 200 cases have been reported in the medical literature [1]. The median age of presentation is between 15 and 25 years of age in 50% of the cases [2]. The majority of patients are asymptomatic or present with a painless inguinal or scrotal mass, undescended testis and rarely torsion of the supernumerary testis [3]. The most common manifestation of polyorchidism is triorchidism where 3 testes are present. The supernumerary testis is most often located on the left side of the scrotum [4].

In this case report, we present the imaging characteristics of triorchidism on both ultrasound and MRI. We discuss how imaging can be used to classify and manage this rare condition.

Case report

A 13-year-old boy presented to his family practitioner with a 2-month history of a left scrotal lump. The lump had been stable in size since detection and there was no history of pain or trauma. He had no relevant past medical history.

On examination, he was systemically well with no history of fevers, aches or pains. His appetite was normal and he had not experienced any loss of weight. There was no lymphadenopathy or evidence of a hernia on inguinal examination. His abdomen was soft with no masses. On examination of the scrotum, the left testicle could be palpated normally; however, there was a discrete lesion superior to the testicle which was firm, mobile and non-tender. The right testicle was normal.

The patient went on to have a scrotal ultrasound scan. This identified an oval, well-circumscribed mass measuring 1.5 cm in long axis (Fig. 1). The mass was discrete to the main testicle with an echotexture identical to testicular tissue and evidence of a single internal vessel. The mass was connected

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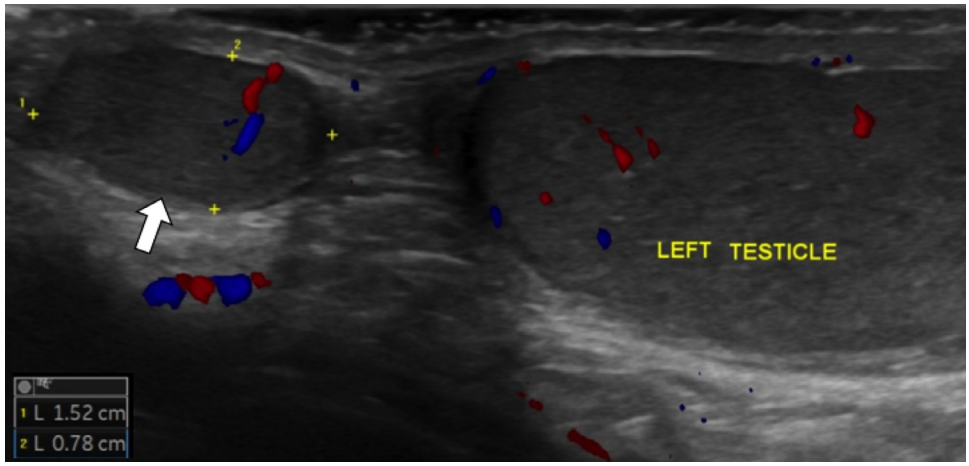

Fig. 1 – A well-circumscribed mass is seen superior to the left testicle (white arrow). The mass appears solid with a homogenous echotexture identical to the adjacent normal testicle. There is evidence of internal vascularity as demonstrated on colour Doppler.

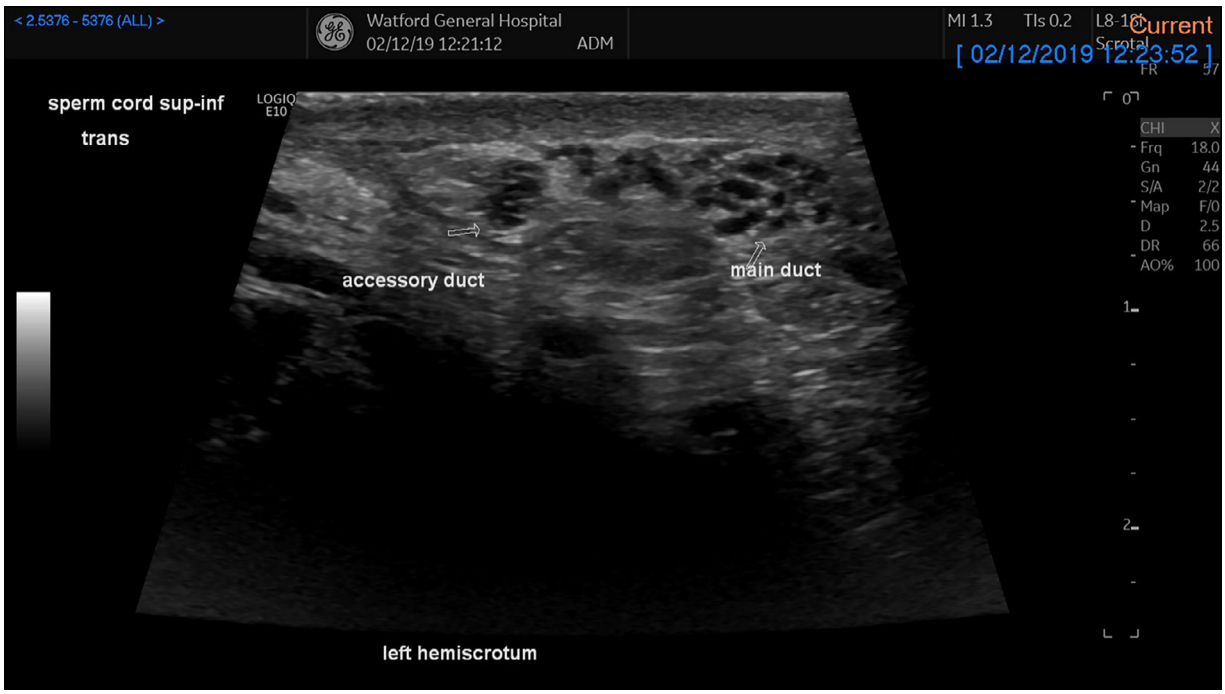

Fig. 2 – The supernumerary testicle with its own epididymis which drained into a common vas deferens via a small accessory duct.

to the main vas deferens via a short accessory duct and was accompanied by an adjoining epididymis (Fig. 2). The child went onto have an MRI which demonstrated that the mass had signal characteristics identical to normal testicular tissue (Fig. 3).

The child was diagnosed with a supernumerary testicle and referred to urology. Surgical exploration and excision were not performed and it was decided to manage the child conservatively with regular clinical and sonographic surveillance.

Discussion

The first proven case of an extra testis was documented by Lane et al. in 1895 [5]. Since that time there have only been 200 cases reported in the medical literature. About 50% of the cases are detected between 15 and 25 years of age [3]. Very few cases of triorchidism have been reported in children less than 2 years. The most common presentation of polyorchidism is

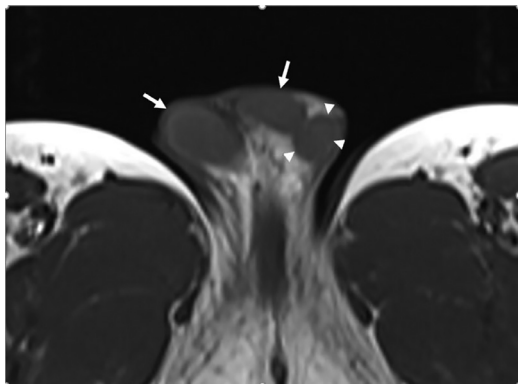

Fig. 3 – A T1-weighted MRI, demonstrating a supernumerary testicle in the left hemiscrotum (arrowheads), which has identical signal characteristics to the adjacent normal testes (arrows).

triorchidism, and the left side is predominantly affected as in our case [6]. The majority of supernumerary testes are scrotal in origin (66%) followed by inguinal (23%) and abdominal (9%) [1].

Embryologically, polyorchidism, or testicular duplication is thought to result from division of the urogenital ridge between the fourth and sixth week of embryological development [7]. This condition can be classified according to the anatomical orientation of the testis and its outflow ducts [4,8,9]:

- Type 1: supernumerary testis without an epididymis or vas deferens
- Type 2: supernumerary testis with a shared common epididymis and vas deferens with the primary testicle
- Type 3: supernumerary testis has its own epididymis but shares a common vas deferens with the ipsilateral testicle
- Type 4: there is complete duplication of testis, epididymis and vas

It was felt that our case was a type 3 variant as the supernumerary testicle shared a common vas deferens.

There are several different complications associated with polyorchidism: maldescent (40%), torsion (15%), inguinal hernias (30%), hydrocoele (9%), malignancy (6%, associated with non-scrotal testis) [9,10]. Cryptorchidism appears to be the most important risk factor for malignancy in patients with supernumerary testes. Thus, patients with a non-scrotal supernumerary testes require appropriate counselling. The management of polyorchidism has evolved over time. In the past, it was common practice to remove the supernumerary testicle due to the presumed risks [11,12]. More recently with advances in ultrasound and magnetic resonance imaging, more conservative management approaches have been advocated using monitoring with clinical examination and non-invasive imaging [13–15].

Supplementary materials

Supplementary material associated with this article can be found, in the online version, at doi:10.1016/j.radcr.2020.06.027.

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