

## INTRODUCTION

Blunt trauma to the testes may result in a number of injuries including haematocele, testicular fracture, and testicular rupture (Holliday et al., 2017). These injuries are more inclined to young men, and mechanisms are associated with sports and motor accidents (ibid, 2017).

Testicular rupture is the rupture of tunica albuginea and extrusion of testicular parenchyma (seminiferous tubules). A force of approximately 50kg is required to rupture the tunica albuginea. It occurs under intense traumatic compression of the testes against the inferior pubic ramus or symphysis (Kitrey et al., 2016). Patients clinically present with testicular swelling, tenderness and severe pain, often making physical examination difficult (Holliday et al., 2017).

Ultrasound is the preferred modality for examining the acute scrotum. It can be rapidly employed to provide high quality imaging to accurately guide clinical decisions; differentiating surgical from non-surgical patients (Holliday et al., 2017). Guichard et al., (2008) report a sensitivity of 100% and specificity of 65% for ultrasound in the detection of testicular rupture in a series of 33 patients.

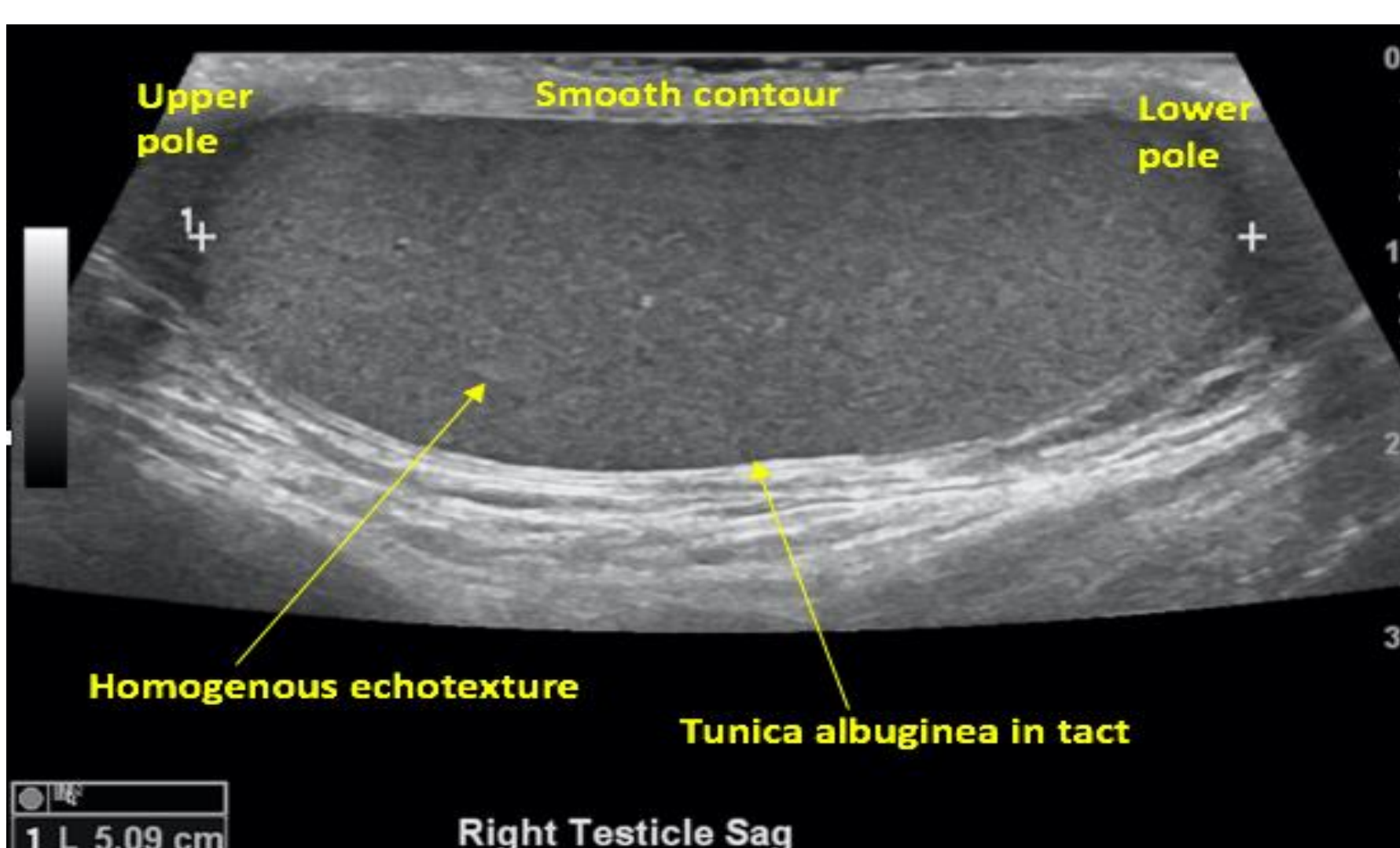
## PATIENT BACKGROUND

A 27 year old male presented to the emergency department (ED) with left testicular pain 72 hours post blunt testicular trauma sustained during football training. The patient had no past medical history. On physical examination, the left testis was tender to palpate and grossly enlarged. The ED physician requested a testicular ultrasound to further investigate testicular trauma.

## ULTRASOUND EXAMINATION

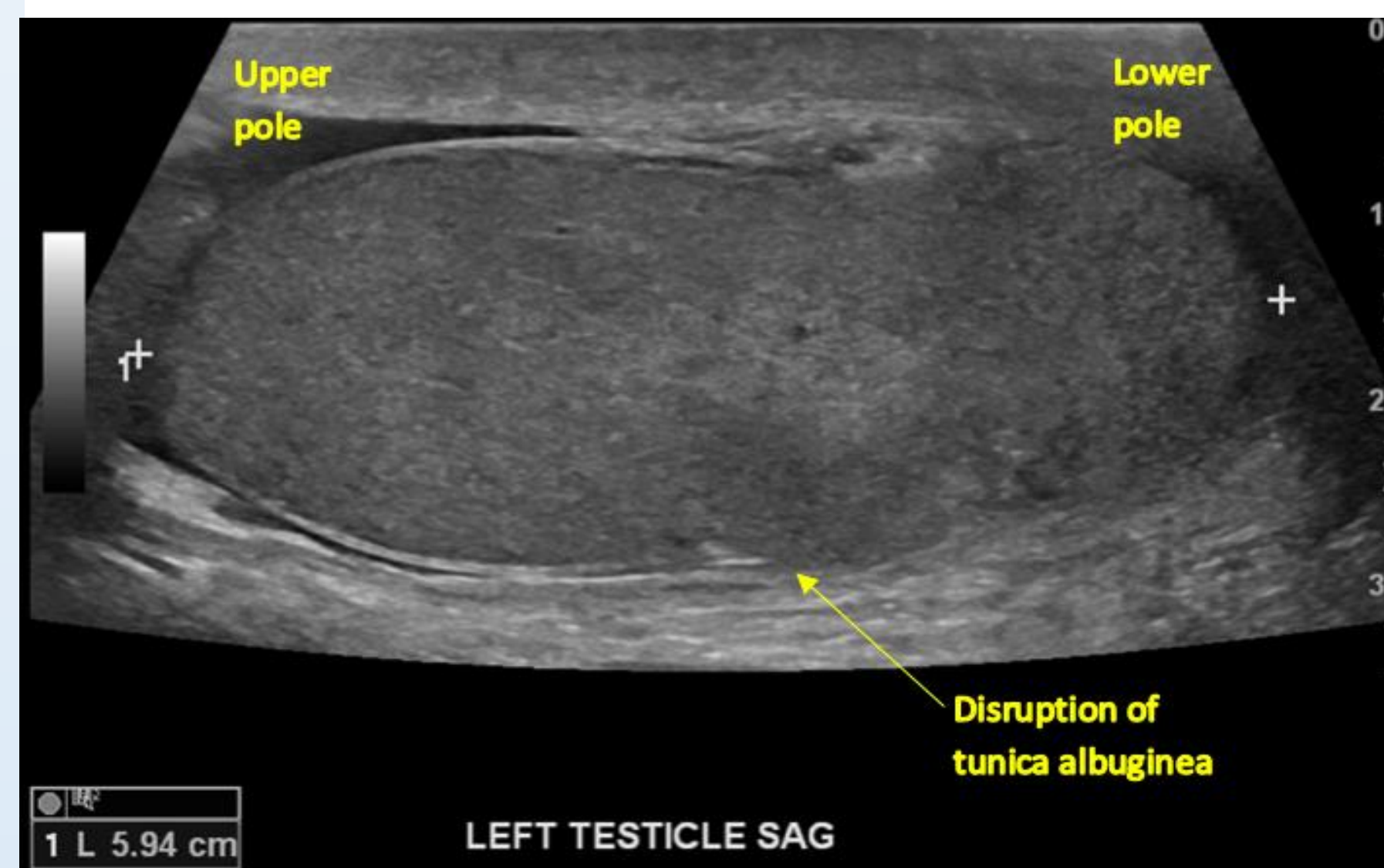
Current European Association of Urology Guidelines (2016) support ultrasound in blunt scrotal trauma to confirm testicular rupture. The main goal is to assess the vascular perfusion and integrity of the testes and distinguish testicular rupture from other injuries (Wang, Stromont and Siddiqui, 2017).

A high frequency linear transducer was utilised to sonographically examine the scrotum.

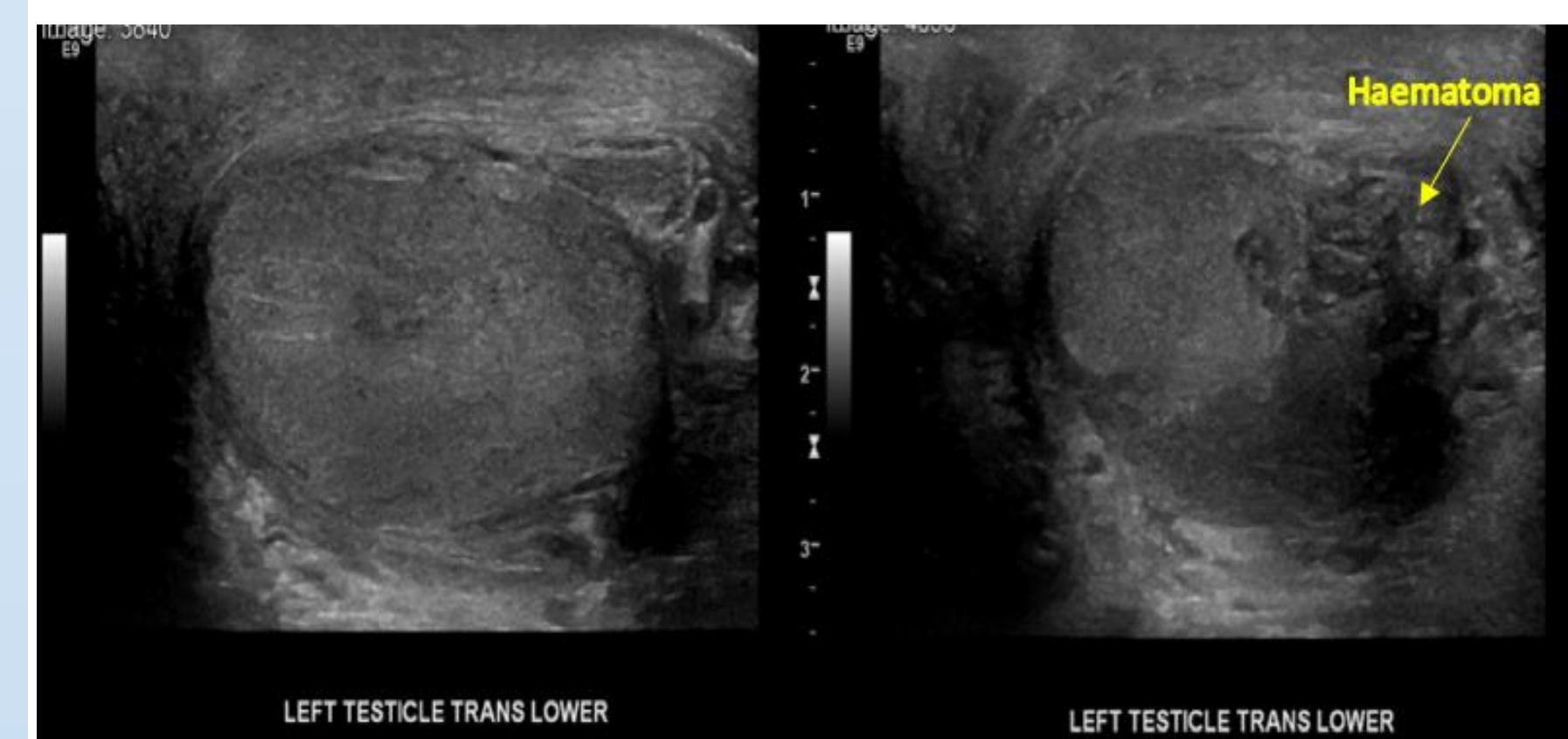


**Figure 1:** The right testis appeared sonographically normal, measuring 5cm in longitudinal length with homogenous parenchyma, intact tunica albuginea and uniform vascularity on application of colour Doppler.

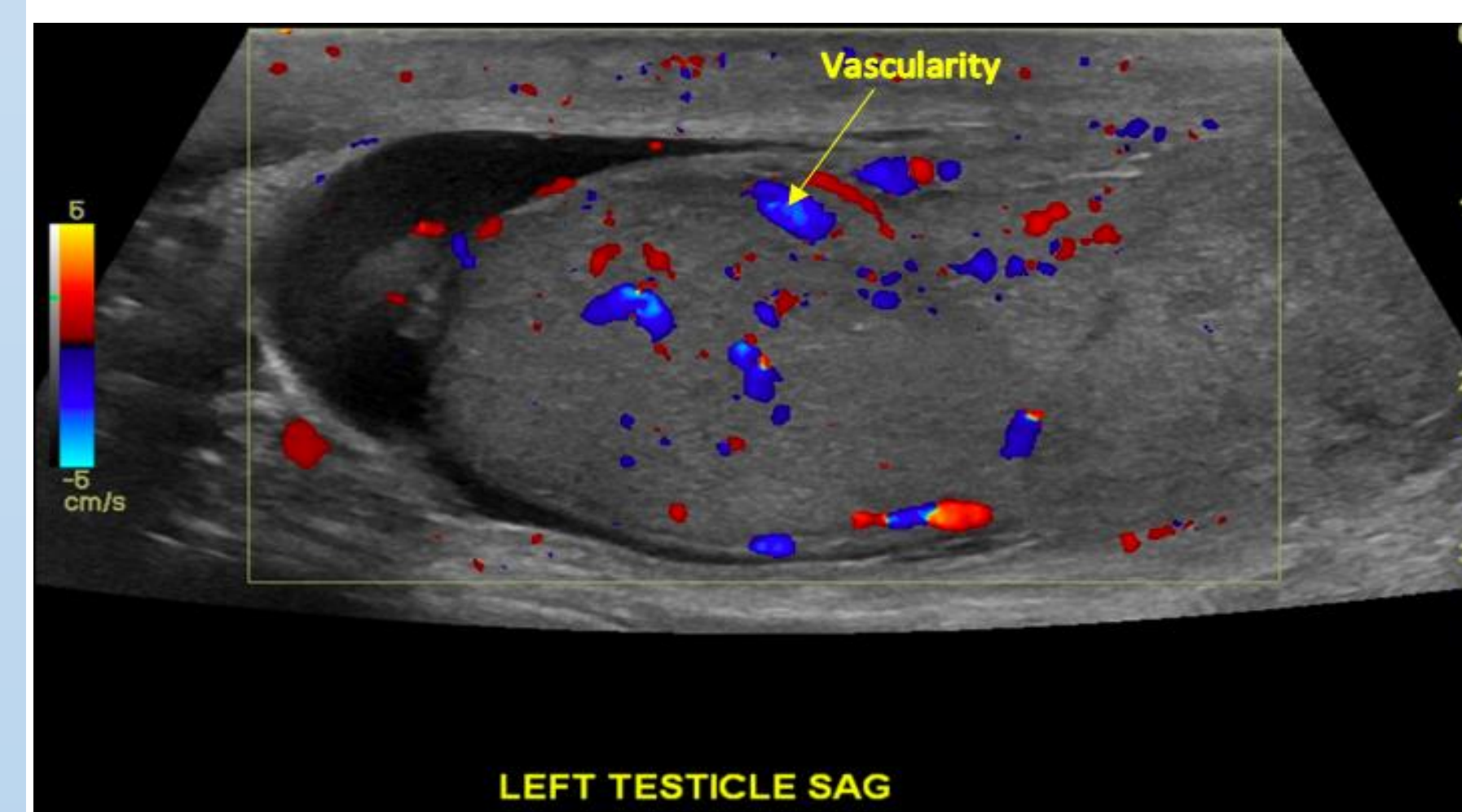
## ULTRASOUND EXAMINATION



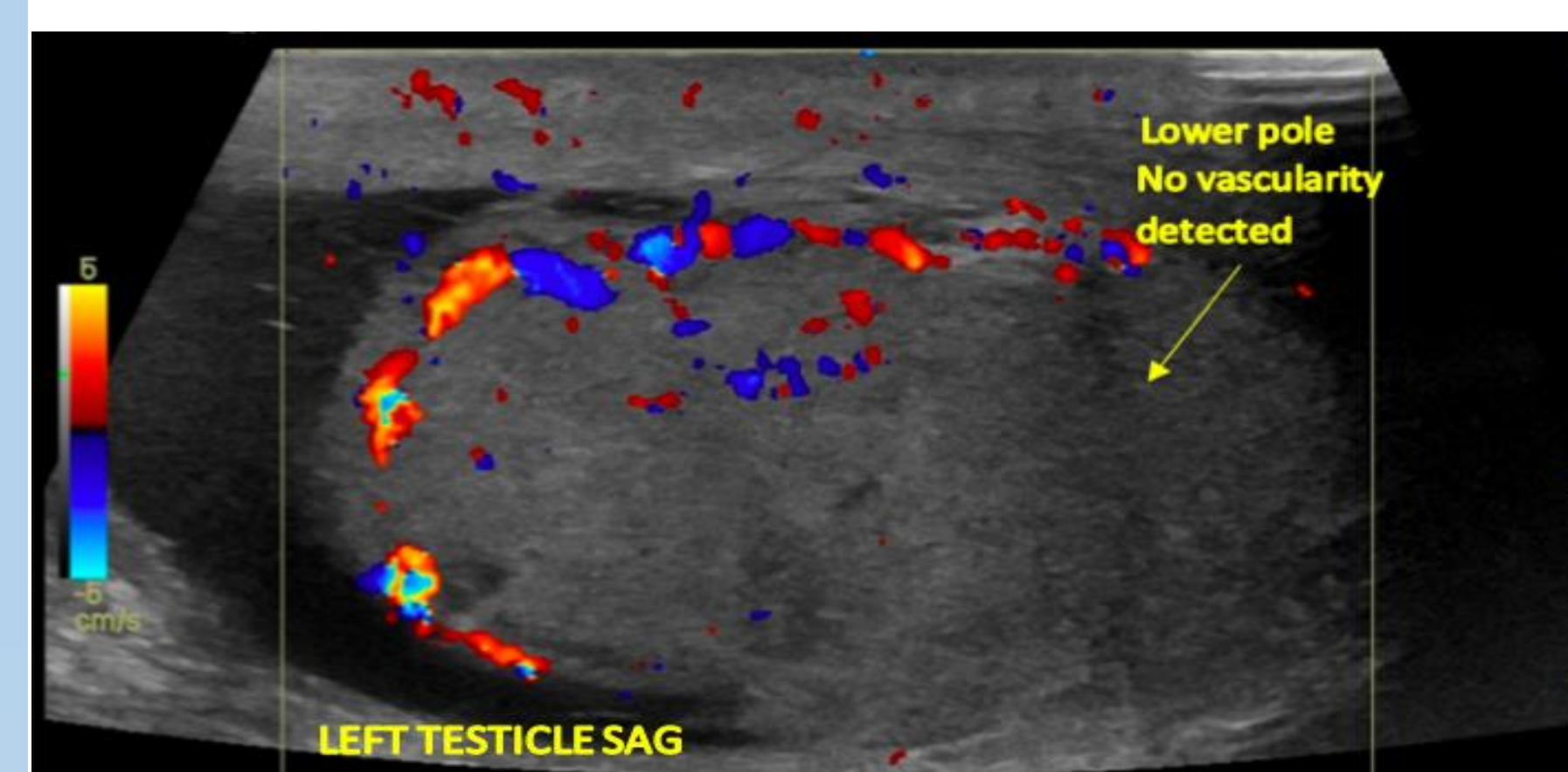
**Figure 2:** The left testis was enlarged measuring 6cm in longitudinal length. The tunica albuginea is sonographically visualised as a thin echogenic line surrounding the testicular parenchyma. Discontinuity is suggestive of testicular rupture; visualised in the lower pole of the left testis. Testicular rupture is usually accompanied by an injury to the testicular parenchyma resulting in the heterogenous echotexture of the lower pole (Adlan and Freeman, 2014).



**Figure 3:** Transverse view of the lower pole of the left testis demonstrating an irregular contour, heterogenous echotexture and a haematoma. These characteristics are highly sensitive and specific for the diagnosis of testicular rupture (Adlan and Freeman, 2014).



**Figure 4:** Rupture of the tunica albuginea is invariably accompanied by disruption of the blood supply to the affected part of the testis. Upper pole vascularity remains intact, however the lower pole demonstrates absent perfusion on Colour Doppler. This provides useful information to the surgeon regarding the extent of debridement (Adlan and Freeman, 2014). Thus, guiding the decision of testicular repair or orchiectomy.



**Figure 5:** Colour Doppler assessment demonstrates absent vascularity in the extruded lower pole. The avascular, lacerated portion of the ruptured testis is usually debrided, and the vascular portions are left behind. Furthermore, the absence of vascularity in a focal area of the testis may be secondary to an intra-testicular hematoma, which may also require surgical evacuation (Bhatt and Dogra 2008).

## SURGICAL TREATMENT

Current management of testicular rupture is surgical exploration and repair or orchiectomy (Weatherspoon, 2017). Prompt surgical intervention is critical in preventing testicular loss with 90% salvage rate when presentation occurs within 72 hours of injury compared to only 30% after 72 hours (Wang, Stromont and Siddiqui, 2017).

Intraoperatively, a transverse or vertical incision is made to fully expose the involved testicular contents. The ruptured tunica albuginea is inspected when the haematocele is drained and testis is pulled out after opening the tunica vaginalis. If the testis is salvageable the necrotic, non-viable tissue is removed. The remaining healthy edge and tunica albuginea are closed with an absorbable suture (Wang et al., 2016).

However, in this case due to the patients delayed presentation to the ED, the chance of testicular repair was reduced to 30%. The testis appeared necrotic and the epididymal artery was transected. Left sided orchiectomy was performed.



**Figure 6:** Intra-operative image of testicular surgical exploration, exposing the scrotal contents.



**Figure 7:** Intra-operative image of removing necrotic, non-viable tissue.

## CONCLUSION

Ultrasound is the modality of choice for the evaluation of blunt scrotal trauma due to its high sensitivity and efficiency in assessing the integrity of the testes and vascular perfusion. Ultrasound findings can guide the physician in determining the optimal treatment. Testicular rupture, the most severe testicular injury caused by blunt scrotal trauma requires early surgical treatment to improve testis salvage rate. Ultrasound was paramount in diagnosing testicular rupture in this case.

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