

A rare case of an intra-scrotal Amyand's hernia

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Background: Amyand's hernias are rare forms of inguinal hernias in which the appendix is contained within the hernia, being present in a minority of hernias. Clinical diagnosis is difficult, with most cases being found intra-operatively as ultrasound is rarely performed beforehand.

Case report: A 1-month-old premature male infant was referred to our emergency services with a right-sided inguinal mass suspected to be an inguino-scrotal hernia. The mass was clinically non-tender and non-inflamed. An ultrasound exam of the right inguinal mass was performed, revealing a non-inflamed appendix alongside a normal appearing testicle, with a small amount of hydrocele. Surgical intervention was subsequently undertaken to address the hernia.

Discussion: Amyand's hernia presents a unique challenge in diagnosis and management. Our patient's case corresponded to Amyand's hernia type 1 and stage 3, as per the Losanoff and Basson classification, where the appendix is non-inflamed and has descended to the scrotum. This pathology is exceedingly rare, with the appendix being found in approximately 1% of inguinal hernias, predominantly in males. The pathogenesis is not fully understood but is attributed to fibrous connections and a patent process vaginalis. The diagnosis is often made intra-operatively due to the variable clinical presentation.

Conclusion: We present a rare case 1-month-old premature boy, who presented with a right inguinal mass. Ultrasound revealed an intrascrotal type 1, stage 3 Amyands's hernia.

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Amyand's hernias are rare forms of inguinal hernias in which the appendix is contained within the hernia.¹ The incidence of this pathology is around 1% of all inguinal hernias.^{1,2} The appendix contained within the hernia can either be non-inflamed, inflamed or even perforated, which can be further classified according to Losanoff and Basson's classification.³ The pathophysiology is still debated and, as it is difficult to diagnose it pre-operatively, most cases are discovered during operations for inguinal hernias.⁴ We present an exceedingly rare case of an Amyand's hernia in a 1-month-old boy in which the appendix descended fully into the scrotum.

CASE REPORT

A 1-month-old boy, prematurely born at 36 weeks gestation, was referred to the emergency services of the hospital by his pediatrician for a right sided inguinal mass, with suspected inguino-scrotal hernial. Upon examination by the on-call surgeon, the patient was referred to radiology in order to rule out a contralateral hernia before surgery. The right inguinal mass was not tender, inflamed, or hard to the touch. Ultrasound of the left inguinal area was unremarkable, with a small hydrocele around a normal left testicle. Ultrasound of the right inguinal mass revealed it to be an inguino-scrotal hernial containing bowel loops. The right scrotal sack revealed a hydrocele, a normal appearing testicle and bowels (**Figure 1** and **Figure 2**). Furthermore, the

appendix was also present within the scrotum, looping inferiorly to the testicle (**Supplemental Video 1**). The appendix was of normal thickness and contained fecal matter but no appendicolith. The patient went on to be operated upon in order to resolve the hernia.

DISCUSSION

Amyand's hernia is a rare diagnosis where the appendix is located in an inguinal hernial sac, named after Claudius Amyand who first described the pathology in 1735.^{1,5} The incarcerated appendix may either be normal or inflamed.⁵ Our patient presented with an Amyand's hernia type 1 and stage 3, according to Losanoff and Basson's classification, defined as an inguinal hernia involving the caecal appendix without signs of inflammation which has reached the scrotum.^{1,6} Approximately 1% of inguinal hernias contain the caecal appendix, making such presentations rare, with a higher incidence of right inguinal hernias, with which it is associated.¹ There is a male preponderance to the pathology with a 90% of overall cases being found in males and a 28:1 ratio of males to females in pediatric populations.⁴ However, it has also been noted that in the rare cases of neonatal appendicitis, which represent around 0,1% of infantile cases, the appendix is within the inguinal canal in up to a third of cases.⁵ With regards to the pathogenesis, it has been suggested that a fibrous connection between the appendix and the testicles,



Figure 1 Ultrasound image acquired using a linear probe showing the scrotum of the patient containing the right testicle (asterisk) as well as the appendix (arrow), seen in a cross-sectional view. The patient also has a small hydrocele surrounding both the testicle and the appendix.

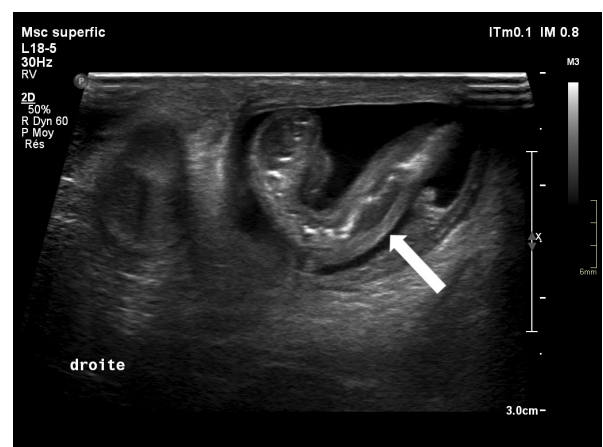


Figure 2 Ultrasound image acquired using a linear probe showing the scrotum of the patient containing showing a longitudinal view of the appendix (arrow), which is clearly visible, containing a small amount of air and fecal material. The patient's hydrocele is also visible.

in addition to a patent process vaginalis, could lead to the appendix being pulled into the inguinal canal, which would account for the higher incidence in children and premature infants.¹ Most Amyand's hernias are right sided, however left sided Amyand's hernias have been reported.¹ This pathology is difficult to diagnose due to having variable symptoms depending on the state of the appendix, though our case shows it can also be an incidental finding, with physical examinations and laboratory results sometimes being non-contributive to the diagnosis.^{1,5} In patients who are symptomatic, it has been described as mimicking an incarcerated or strangulated hernia.⁵ As imagery is generally not requested by surgeons unless the inguinal hernia is incarcerated or resists reduction, Amyand's hernia remains an uncommon ultrasound finding, with the diagnosis generally being made intra-operatively.¹

With regard to the management of the condition, recent studies have pointed towards laparoscopy being the preferred approach as it allows for better

visualization of the entire abdominal cavity and is thus both diagnostic and therapeutic.⁵ Concurrent appendectomy and inguinal hernia repair is possible, but the indication to do so is remains debated.^{1,5}

Although other reports of type 1 Amyand hernias exist in the literature, we found no others describing an intrascrotal appendix in a neonatal case, leading us to believe that this a very rare occurrence.

CONCLUSION

We presented the case of a 1-month-old boy who presented for the investigation of a suspected inguino-scrotal hernia in whom an Amyand's hernia was discovered. Amyand's hernias are rare forms of inguinal hernias containing the appendix. They are often discovered during surgery because they are difficult to detect clinically, often being mistaken for incarcerated hernias. Their pathophysiology remains poorly understood and the indications for the type of surgical intervention are also debated.

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