

## Case Report

# Inflamed appendix as a cause of incarcerated inguinal hernia in a neonate

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## ABSTRACT

Inflamed appendix as a cause of incarcerated inguinal hernia is a rare presentation in any age group. Appendix as a content in an inguinal hernial sac was named after the French surgeon Claudius Amyand (c.1681-1740), who performed the first successful appendectomy, on an 11-year-old boy who presented with an inflamed, perforated appendix in his inguinal hernia sac. Treatment of this condition is herniotomy with its repair with or without appendectomy depending on its involvement (inflammation status). We are reporting the case, in which, the inflamed appendix was presented as incarcerated inguinal hernia. The management of Amyand's hernia depends on the variability of involvement of the appendix however, in children and neonates, it is better to perform appendectomy during the hernia repair.

**Keywords:** Inguinal hernia, Incarcerated hernia, Amyand's hernia

## INTRODUCTION

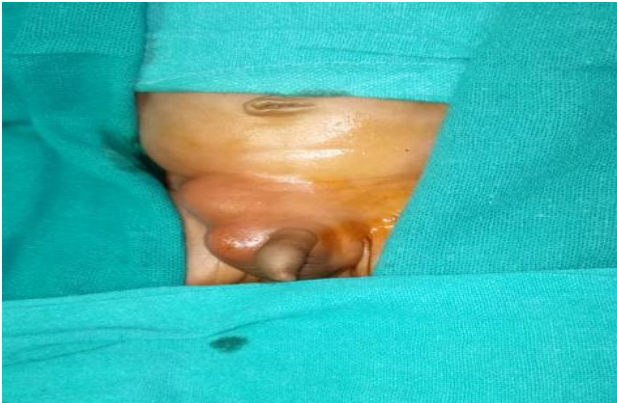
Amyand's hernia (AH) is defined as protrusion of the vermiform appendix within the sac of the inguinal hernia. The diagnosis is made at the time of the surgery for the repair of hernia, it is more common in paediatric patients but is rare in neonates. The patients of indirect inguinal hernia, especially children might present to emergency with the symptoms of swelling in the groin with features of intestinal obstruction or severe pain. Management of Amyand's hernia depends on the clinical presentation and the involvement of the appendix, as if it was inflamed, appendectomy was also performed.

Authors have presented a case report of sixteen-day old male neonate presented to paediatrics emergency with features of intestinal obstruction and a right groin swelling, a diagnosis of incarcerated indirect inguinal hernia was made, which when operated came out as Amyand's hernia with an inflamed appendix as its content.<sup>1</sup>

## CASE REPORT

A 16 days old male neonate presented to emergency with the history of intolerance to feed, constipation and multiple episodes of bilious vomiting and a red tender swelling in the right groin. The baby was a full term, delivered vaginally with no significant antenatal history. On examination the abdomen was tense and distended. On examination of the right groin, there was a red, ovoid swelling which was tender and the local temperature was also raised. On ultrasound of the abdomen and the right groin there was an indirect inguinal hernia with a blind ending loop of bowel present as the content of the hernia. X-ray of the abdomen showed multiple air fluid levels, and the diagnosis of incarcerated indirect inguinal hernia was made as per clinical and radiological details. Blood investigations suggested mild leukocytosis, and after consent, the patient was taken up for exploratory surgery, right sided transverse lower abdominal skin crease incision and upper scrotal incision were given under general anaesthesia. Obstructed indirect inguinal hernia was observed, herniotomy was performed and the inflamed

appendix was found as the content thus, appendectomy was performed. The hernial repair was done. Post-operative phase was uneventful and the patient was discharged on oral diet soon.



**Figure 1: Preoperative picture of the neonate, showing an incarcerated inguinal hernia.**



**Figure 2: Intra-operative picture depicting the inflamed appendix and the normal bowel loops.**

## DISCUSSION

Inguinal hernias are not an uncommon diagnosis in children and in neonates. They often present as semi-emergencies due to the known complications – incarceration, obstruction and strangulation.

Claudius Amyand (c.1681-1740) was a French surgeon who performed the first successful appendectomy in 1735, on an 11-year-old boy who presented with an inflamed, perforated appendix in his inguinal hernia sac.<sup>2</sup>

Amyand's hernia is defined as an appendix that is contained within an inguinal hernia. The rate of the appendix being found within an inguinal hernia has been noted to be about 1%. Of the 1%, the appendix has been found to be inflamed in just 0.1%. More recent research suggests the prevalence is smaller than previous thought, occurring in 0.4-0.6% of all inguinal hernias.<sup>2,3</sup> The total

number of cases is not known as they are infrequently reported.

Several theories about the aetiology of Amyand's hernia have been hypothesized. This is a result of either primary inflammation of the appendix causing oedema of the internal inguinal ring or incarceration of a normal appendix by abdominal wall musculature. The theory with the most support suggests that compression of the appendiceal neck within the hernia itself causes the ischemia and inflammation.<sup>3</sup>

Interestingly, Amyand's hernia is up to three times more common in children due to the processus vaginalis being patent. Amyand's hernia has a wide range of presentations, ranging from a normal appendix within an inguinal hernia, to acute appendicitis in an inguinal hernia with peritoneal and/or abdominal wall sepsis. Losanoff and Bassof proposed a schema for surgical repair based on clinical and imaging findings in adults and has classified it into four types. The surgical treatment depends on the presence or absence of appendicitis and the extent of inflammation/sepsis.<sup>3</sup> Herniotomy with or without scrotal exploration and appendectomy remains the mainstay of the surgical treatment.

In the paediatric population and in neonates, hernial repair with prophylactic appendectomy should be performed, as children have a higher risk of acquiring acute appendicitis.<sup>5,6,8</sup>

## CONCLUSION

Inguinal hernias in the neonates should be treated as semi-emergencies as it can land up into the complications such as obstruction or strangulation. Sometimes, the inflamed appendix can be the mode of presentation in the neonatal inguinal hernia as in the present case, which was managed by herniotomy with appendectomy and hernia repair. The authors suggest that the management of Amyand's hernia depends on the variability of involvement of the appendix however, in children and neonates, it is better to perform appendectomy during the hernia repair.

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