Volume 02, Issue 05 (September-October 2019), PP 31-35 www.ijmsdr.org
ISSN: 2581-902X

International Journal of Medical Science and Dental Research

Claudius Amyand's Hernia: A Review of Four Cases Collected in the Pediatric Surgery Department at Albert Royer Children's Hospital

GUEYE D, NDOYE N A,WELLE I B, MBAYE P A, SECK N F S,, CISSE L, FALL Y, SAGNA A, NGOM G.,
Doctor Doudou GUEYE,
Pediatric Surgery Department at Albert Royer Children's Hospital Dakar / SENEGAL

ABSTRACT: *Acute appendicitis can sometimes take unusual forms. Among them, there is Amyand's hernia, which corresponds to the development of appendicitis within a parietal hernia. It's a rare condition.*
This case series describes four observations of children, who presented inguinal hernia symptoms. Amyand's hernia diagnosis was not discussed before surgery and no imaging investigation was performed.
Mostly the treatment consists of an appendectomy and a hernial repair. No complication was recorded.
The purpose of our work is to compare our management with the data in the literature in order to allow an appropriate diagnosis and therapeutic approach.

Keywords: *Amyand's hernia, appendectomy.*

I. INTRODUCTION

Amyand's hernia corresponds to the presence an inflamed or non-inflamed appendix within the hernial sac.
It is an exceedingly uncommon presentation [1].
The diagnosis is often made during surgical procedure due to the low index of suspicion. The treatment is surgical and consists of appendectomy and hernial repair.

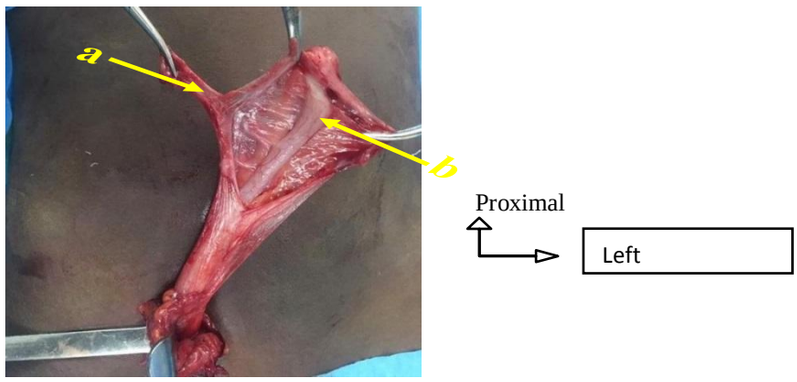
II. OBSERVATIONS

Observation 1
It was about a 6-year-old male child, with no personalmedical history, who presented on admission a painful, right-sided inguinal swelling without vomiting or bowel habit disorders.
The clinical examination found a good general condition, a fever at 37.9°C, a painful right-sided inguinal swelling, spontaneously irreducible; the abdomen was soft and painless.
The diagnosis of an engulfed inguinal hernia was made after a successful completion of the taxi manoeuvre.
The patient was admitted and surgical approach postponed.
According to the persistence of fever, an infectious assessment was carried out and showed a non-specific inflammatory syndrome with neutrophilic polynucleosis at 10900/mm3, and a CRP at 24 mg/l. surgical exploration on the third day of hospitalization revealed an inflammatory appendix within a hernial sac corresponding to a Claudius Amyand's hernia with appendicitis (Figure 1). An appendectomy and a hernial repair were performed. The postoperative suites were unremarkable. The anatomopathological examination of the specimen found a fibrino-leukocyte exudate lining the serosa indicating an acute appendicitis.

a- Hernial Sac

b- Appendix

Figure 1: hernial sac containing the appendix



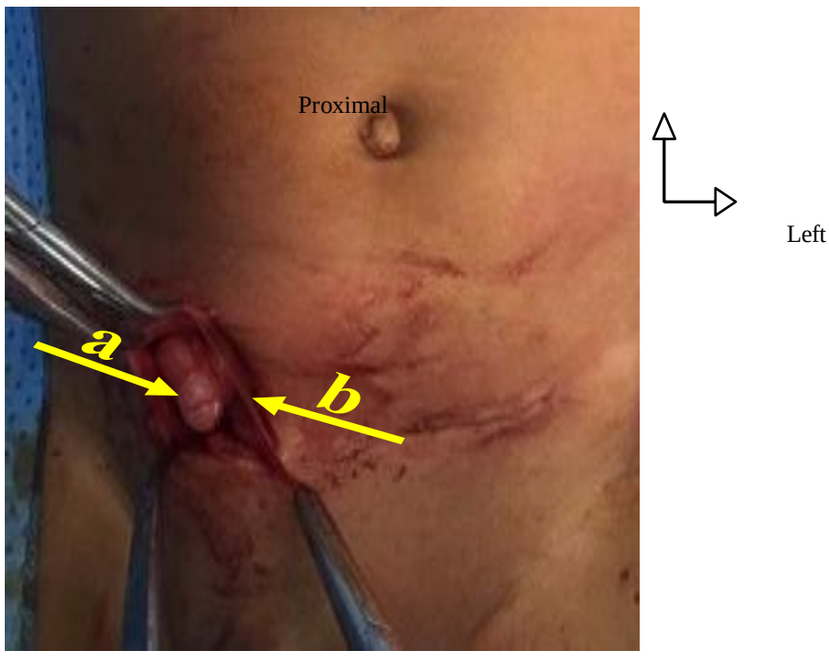
Observation 2

The diagnosis of an simple inguinal hernia was made It was about an 11-month-old male infant, with unremarkable medical history, who was seen for a painless intermittent right inguinal swelling, evolving since birth.

The general examination revealed a good general condition with a normal temperature.

The physical examination noted a large, painless, reducible with an expansile reflex of right inguinal swelling. The testicles were intrascrotal, the rest of the physical examination was unremarkable.

and a hernia cure has been scheduled. Surgical exploration revealed a hernial sac containing a healthy appendix, corresponding to the diagnosis of an Amyand's hernia (Figure 2). An appendectomy and a hernial repair were performed. The postoperative outcome was unremarkable.



a- Appendix

b- b- Hernial sac

Figure 2 : hernial sac containing the appendix

Observation 3

It was a 3-year-old male child who has been followed in our department for 2 years for a right inguinal hernia.

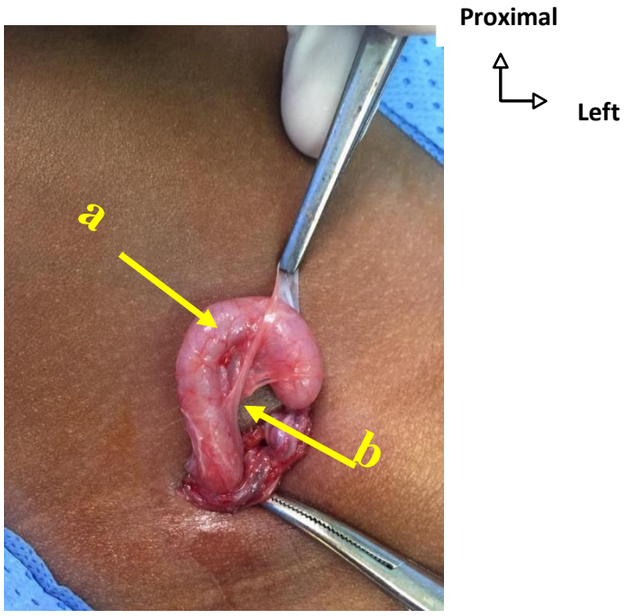
On admission, he was in good general condition; physical examination noted a painless right inguinal swelling, expansive with effort, reducible. The testes were intrascrotal. The rest of the examination was unremarkable.

A diagnosis of an uncomplicated right inguinal hernia has been provided and a surgical approach has been scheduled.

Surgical exploration revealed a hernia sac containing a healthy appendix (Figure 3), corresponding to a Claudius Amyand hernia.

A reintroduction of the appendix into the abdomen and a hernial opening closure were performed.

The postoperative outcome was simple.



c- Appendix

d- b- Hernial sac

Figure 2 : Appendix within the hernial sac

Observation 4

It was a 4-year-old male child, with no particular medical history, who was seen for a painless right scrotal swelling, which occurred intermittently and evolving since birth.
The general examination found a good general condition and a normal temperature.
The physical examination noted a right scrotal swelling, painless, irreducible. The right testicle was not palpated whereas the left testicle was intrascrotal; the transillumination test was positive. The rest of the physical examination found a mid-defect umbilical hernia.
The diagnosis of hydrocele associated with umbilical hernia was set and surgical management was indicated. An aponeurography was performed for the umbilical hernia. For hydrocele, surgical exploration revealed brown fluid content, the peritoneovaginal canal contained a macroscopically healthy appendix (Figure 4), corresponding to Amyand's hernia. Then liquid suction and appendectomy were performed followed by hernia repair. The postoperative outcome went well. The anatomopathological examination showed a non-inflammed appendix.

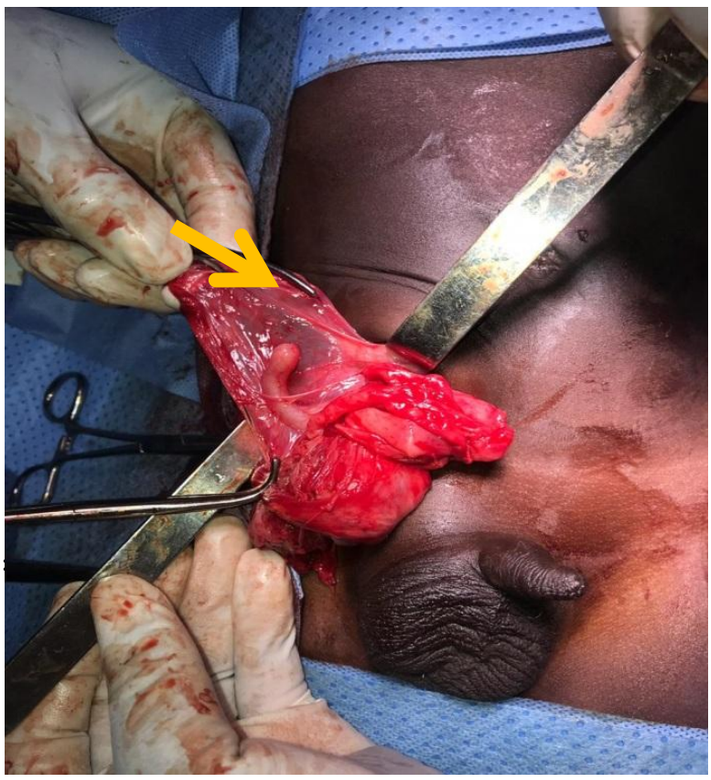


Figure 4 :

III. DISCUSSION

The caeco-appendix positional variations allow the appendix to reach almost all abdominal hernia openings. However, the most common site remains inguinal [2].

Amyand's hernia is a rare condition. Its incidence in the literature ranges from 0.2 to 1.7%, and the presence of associated acute appendicitis is even rarer in the range of 0.07 to 0.13% [3].

The most common clinical presentation of Claudius Amyand's hernia is that of a simple hernia with a painless, expansive during effort, reducible inguinal mass [4]. This hernia is most often located on the right side. In case of acute appendicitis, spontaneous or induced pain may appear in the inguinal region. This pain may be associated with an infectious syndrome.

In our study two children are admitted in a simple right inguinal hernia clinical course.

One of our four patients had a complicated right inguinal hernia in a fever context, probably related to acute appendicitis.

For all our patients, the diagnosis of Amyand's hernia was not discussed in the pre-operative period, mainly because of the low index of suspicion for this pathology. This result is similar to what is found in the literature [5].

Additional biological and imaging examinations may lend a further support for the diagnosis of Amyand's hernia. FBC and CRP may show non-specific inflammatory syndrome, such as in children with acute appendicitis. This inflammatory syndrome must be referred to imaging tests to determine the contents of the hernial sac. Ultrasound and CT scans are the two key-radiological investigations for the diagnosis of Amyand's hernia [6].

In our study, these examinations were not carried out, which made pre-operative diagnosis impossible.

When a non-inflammed appendix is discovered during a hernia cure, it is indicated to perform an inguinal appendectomy and a hernia repair during surgical approach [7].

However, the indicationof appendectomy in case of a non-inflammed appendix is not univocal in the literature [8].

In fact, some authors prefer to simply reintroduce the appendix into the abdomen and close the opening. On the other hand, in the case of Amyand's hernia with appendicitis, appendectomy is systematic and is performed before hernia repair. Indeed, appendicitis develops on its own account and a delay, or lack of treatment, can be fatal. According to Carrey[9]three out of ten patients died from Amyand's hernia.

In our series, the patient who had an Amyand's hernia with acute appendicitis had an appendectomy with hernia repair. For other children with Amyand's hernia with a healthy appendix, the surgeons' attitude is not unequivocal and is justified by many controversies in the literature. All our four patients had a good outcome.

IV. CONCLUSION

Claudius Amyand's hernia is a pathology whose diagnosis is difficult to make in the pre-operative period.

Claudius Amyand's hernia should be conjured up in case of any painful right-sided inguinal swelling associated with an infectious syndrome, especially in boys. The treatment is surgical with hernial repair and appendectomy in all cases.

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