



## **AMYAND'S HERNIA WITH TESTICULAR ISCHEMIA IN A PRETERM INFANT**

**Ramnik Patel<sup>1\*</sup>, Gregory Shepherd<sup>1</sup>, Paul Jackson<sup>1</sup>, Richard Lindley<sup>2</sup>, Daniel Colliver<sup>3</sup>,  
Richard Stewart<sup>3</sup>**

<sup>1</sup>Specialist Registrar, Pediatric Surgery, Department of Pediatric Surgery, Queens Medical Centre, Nottingham University Hospitals NHS Trust, Derby Road, Nottingham NG7 2UH United Kingdom.

<sup>2</sup>Consultant Pediatric Surgeon, Sheffield Children Hospital, London, United Kingdom.

<sup>3</sup>Consultant Pediatric Surgeon, QMC, Nottingham, United Kingdom.

Corresponding Author: - **Ramnik Patel**

**E-mail:** [ramnik@doctors.org.uk](mailto:ramnik@doctors.org.uk)

### **Article Info**

*Received 15/05/2015*

*Revised 27/06/2015*

*Accepted 22/07/2015*

### **Key words:**

Amyand's hernia,  
testicular ischemia,  
preterm infant,  
obstruction, inguinal  
hernia, sliding hernia.

### **ABSTRACT**

The finding of a normal or inflamed vermiform appendix within an inguinal hernia is termed Amyand's hernia. We report a case in preterm infant which presented with obstructed hernia with difficult reduction and had an associated testicular ischemia at exploration. Difficulties in accurate preoperative diagnosis and dilemmas in management have been highlighted. A sliding hernia should be suspected if there is difficulty in reducing it and if it gives an impression of immediate recurrence. Amyand's hernia is impossible to diagnose pre-operatively and it would be evident upon exploration. If the ischemia to bowel or testis is suspected with unsatisfactory complete reduction, immediate exploration should be undertaken. At exploration, a normal appendix should be left in situ rather than doing an incidental appendectomy as it may have immune function in infants and children. Appendectomy, in addition, may convert a clean into potentially infected wound. Sliding hernia with obstruction and ischemia may be difficult challenge to repair and the recurrence may be higher.

### **INTRODUCTION**

An inguinal hernia whose sac contains appendix is defined as "Amyand's hernia", in homage to Claudius Amyand, and English surgeon of the 18th century, who first described this condition in 1936 [1]. It is rare in neonates and infants; an accurate incidence cannot be estimated because only few cases and small series have been reported in the literature till date as reported by Livaditi et al, D'Alia et al, Ashraf et al, Okur et al, Cankorkmaz et al and Kaymakci et al [2-7]. This is a case report of an Amyand's hernia in preterm infant with testicular ischemia. It is indeed a rare and interesting case.

### **Case report**

A 5 week and 4 days old preterm infant boy born as one of the twins at 34 weeks gestation presented to children's emergency department with excessive crying,

non-bilious vomiting after each feed, poor sucking and lethargy of one-day duration. He has less wet nappies and not opened bowels for 24 hours.

The infant was born at 34 weeks by emergency caesarean section (twin sister had breech presentation) following 5 days of prolonged rupture of membranes for which he received intravenous antibiotics for 5 days and had some grunting after birth and required supplementary oxygen for 3 days. The infant was nasogastric fed for 10 days and was discharged home at 2 weeks. His birth weight was 2.4 kg and current weight 3.22 kg.

On examination he was lethargic, mottled with cool peripheries and capillary refilling time of 2 to 3 seconds. Chest was clear and heart sounds were normal. There was generalized abdominal distension and an obstructed right inguinal hernia, which was very tense,



tender and difficult to reduce even when he settled down. Attempts at reduction of hernia by junior and senior doctors failed.

Urine and blood tests were within normal limits. Incarcerated hernia leading to obstructed inguinal hernia and possible strangulation or testicular ischemia were considered as possible differential diagnosis.

Infant was kept nil by mouth, started on intravenous fluids and nasogastric tube was inserted. He was taken to theatre and examination under anesthesia allowed partial reduction with immediate recurrence when left alone.

Inguinal exploration revealed right inguinal hernia containing normal appendix and venous congestion and ischemic pale bluish discoloration and edematous spermatic cord with discolored, congested and swollen right testis.

There was sliding right inguinal hernia with ileocecal area and normal appendix as contents. It was difficult to reduce the contents due to sliding component. The contents were reduced as much as possible and a purse string suture was applied and the peritoneal opening was closed with repair of the sliding hernia. Right testis was fully descended but very swollen, discolored and the spermatic cord was having edema and discoloration.

Infant's post-operative recovery was good and discharged home on the following day. At one year follow up right testis was smaller in size and softer in consistency as compared to the left testis. Testicular atrophy following ischemic insult during obstructive episode is irreversible and parents have accepted the sequel to an acute event. There is no recurrence at 6 year follow up and the testicular atrophy persists.

## DISCUSSION

Acute appendicitis leading to cord compression and consequent testicular ischemia in a neonate has been described by Milburn et al and Ngom et al [8-9] but the testicular ischemia secondary to obstructed inguinal hernia and a normal appendix is rare. Most adult patients found to have appendix during hernia surgery has undergone

incidental appendectomy even when it is normal. Sharma et al [10] reported an incidence estimated at 0.07–0.13 % only for appendicitis within an inguinal hernia. However, we believe that the appendix at least in infants and children has immunological role similar to the palatine tonsils in the throat and if the appendix is normal it should be left in situ rather than doing an incidental appendectomy. This may contaminate the operative field in these preterm infants.

Amyand's hernia is difficult to diagnose pre-operatively and the diagnosis is established at exploration. It may be seen in cases of reducible, incarcerated or partially reducible hernia without acute symptoms of obstruction, strangulation or ischemia.

Difficulty in diagnosis is complicated by unexpected findings of testicular ischemia and associated sliding component of the hernia challenging appropriate hernia repair technique to avoid complications in general and that of recurrence in particular.

We believe that awareness about the possibility of this rare entity and the associated challenges in the diagnosis and treatment may help appropriately treat it when faced with an occasional case.

## CONCLUSION

A sliding hernia should be suspected if there is difficulty in reducing it and if it gives an impression of immediate recurrence. Amyand's hernia is impossible to diagnose pre-operatively and it would be evident upon exploration. If the ischemia to bowel or testis is suspected with unsatisfactory complete reduction, immediate exploration should be undertaken rather than tradition 48 hour waiting for the edema to settle down. At exploration, a normal appendix should be left in situ rather than doing an incidental appendectomy as it may have immune function in infants and children. Sliding hernia with obstruction and ischemia may be difficult challenge to repair and the recurrence may be more than in normal infants without these additional features.

**Conflict of Interest:** None

## REFERENCES

1. Amyand C. (1936). Of an inguinal rupture, with a pin in the appendix coeci, incrustrated with stones; and some observations on wounds in the guts. *Phil Trans Royal Soc*, 39, 329.
2. Livaditi E, Mavridis G, Christopoulos-Geroulanos G. (2007). Amyand's hernia in premature neonates: report of two cases. *Hernia. E Pub*, Jun 1.
3. D'Alia C, Lo Schiavo MG, Tonante A, Taranto F, Gagliano E, Bonanno L, Di Giuseppe G, Pagano D, Sturniolo G. (2003). Amyand's hernia: case report and review of the literature. *Hernia*, 7, 89-91.
4. Ashraf HM, Ibrahim FR, Talal A. (2000). Scrotal appendicitis mimicking acute testicular torsion in a neonate. *Ann Saudi Med*, 20, 55-6.
5. Okur MH, Karaçay S, Uygun I, Topçu K, Öztürk H. (2013). Amyand's hernias in childhood (a report on 21 patients): a single-centre experience. *Pediatr Surg Int*, 29, 571-4.
6. Cankorkmaz L, Ozer H, Guney C, Atalar MH, Arslan MS, Koyluoglu G. (2010). Amyand's hernia in the children: A single center experience. *Surgery*, 147, 140-3.
7. Kaymakci A, Akillioglu I, Akkoyun I, Guven S, Ozdemir A, Gulen S. (2009). Amyand's hernia: a series of 30 cases in children. *Hernia*, 13, 609-12.



8. Milburn JA, Youngson GG. (2006). Amyand's hernia presenting as neonatal testicular ischemia. *Pediatr Surg Int*, 22, 390-2.
9. Ngom G, Amadou I, Ibrahima KA, Mubake A, Ndour O, Ndoye M. (2010). Amyand's hernia with perforated appendix in a neonate. *BMJ Case Reports*, doi:10.1136/bcr.03.2010.2847.
10. Sharma H, Gupta A, Shekhawat NS, Memon B, Memon MA. (2007). Amyand's hernia: a report of 18 consecutive patients over a 15 year period. *Hernia*, 11, 31-5.

