

# Infantile Amyand's Hernia with Preoperatively Diagnosed By Ultrasound: Case Report

## Ameliyat Öncesi Ultrasonografi ile Tanı Konulan İnfantil Amyand Fıtığı Olgusu

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Geliş Tarihi/Received: 02.10.2008  
 Kabul Tarihi/Accepted: 01.01.2009

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**ABSTRACT** The presence of a vermiform appendix in an inguinal hernia sac is termed Amyand's hernia and it is a rare entity. It may be presented as an inguinal or inguino-scrotal swelling and is often misdiagnosed as an incarcerated or strangulated hernia. We reported here the case of an 8-months-old boy with a right-sided sliding appendiceal inguinal hernia that was diagnosed preoperatively by ultrasonography. Amyand's hernia is usually diagnosed intraoperatively. There are a few cases in the literature, in which such a case was correctly diagnosed preoperatively by only ultrasonography. The correct diagnosis was made via preoperative inguinal sonography and was confirmed via computed tomography in the previous literature. Using ultrasonography to diagnose Amyand's hernia preoperatively could be sufficient and might protect children from potential complication and side-effects of radiation.

**Key Words:** Hernia, inguinal; ultrasonography

**ÖZET** Kasık fıtık kesesi içinde apendiksin bulunması nadir bir durumdur ve Amyand fıtığı olarak adlandırılır. Kasık ya da kasıktan skrotuma doğru uzanan şişlik yakınması ile gelen olgulara, sıklıkla yanlışlıkla inkarsere ya da strangüle fıtık tanısı konulur. Çalışmamızda, ameliyat öncesi yalnızca ultrasonografi ile doğru tanı konulan, sağ inguinal fıtık kesesine apendiksin sliding yaptığı 8 aylık erkek çocuğu sunuldu. Amyand fıtığının tanısı çoğunlukla ameliyatta konulur. Literatürde ameliyat öncesi yalnızca ultrasonografi ile tanı konulan birkaç olgu mevcuttur. Önceki yayınlarda ultrasonografi ile tanı konulan olgularda bilgisayarlı tomografi ile tanı doğrulanmıştır. Ultrasonografi Amyand fıtığı tanısında kullanılabilir. Ultrasonografi ile erken tanı konulması potansiyel komplikasyonları ve hastaya tanısız radyasyonun verebileceği potansiyel zararlı etkileri önleyebilir.

**Anahtar Kelimeler:** Kasık fıtığı; ultrasonografi

**Türkiye Klinikleri J Pediatr 2010;19(2):152-4**

**C**adius Amyand (1681-1740) was the first to describe the presence of a perforated appendix within the hernia sac of a boy who had undergone successful appendectomy.<sup>1</sup> The case was the first successful appendectomy in history which was carried out. Appendix within an inguinal hernia, known as Amyand's hernia, is a rare entity those incidences is not described in the literature. It is incidence ranges from 0.08% to 0.13% of all cases of appendicitis.<sup>2,3</sup> Diagnosis of acute appendicitis could be more difficult in case of an atypical location of the appendix, for example, in the hernia sac. Diagnosis of Amyand's hernia can be made after incision of the sac

in patients with symptoms of inguinal hernia incarceration. The presence of the vermiform appendix inside a hernial sac has been described in 1% of all the adult inguinal hernias.<sup>4</sup> Acute appendicitis inside a hernia sac is less common and clinical diagnosis is extremely difficult.

We report here a typical case in 8-month-old patient. The correct diagnosis was made via preoperative inguinal ultrasonography (USG) allowing prompt appropriate surgical management.

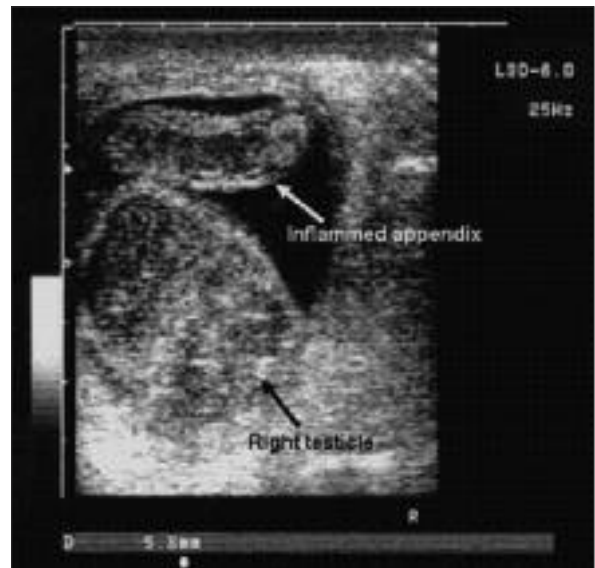
## CASE REPORT

An 8-month-old boy was admitted to our pediatric surgery department with irreducible swelling in the right inguinal area and vomiting. Physical examination revealed a swelling located in the right inguinal region extending down to the scrotum, which was hard and tender in palpation. Abdominal examination was unremarkable. Total leukocyte count was 8390/mm<sup>3</sup>, Hb 10.9 g/dL. C-reactive protein was 43.5 mg/L. Urinalysis was normal. Plain film showed dense gas shadow in the region of the cecum. USG examination, performed to evaluate his irreducible mass, showed the dilated (5.8-mm diameter) thick walled appendix surrounded with fluid and omental structures, within inguinal hernia sac (Figure 1).

After administration of general anesthesia an incision was made the skin crease of the right inguinal region just above the superficial ring. The edematous hernia sac dissected, an inflamed appendix was found with adhesions to the hernia sac. Appendectomy and hernia repairs were successfully completed without any complication. The patient was discharged on the 6th postoperative day. Diagnosis of acute appendicitis, without perforation, was confirmed histopathologically.

## DISCUSSION

Amyand's hernia is often clinically misdiagnosed as a strangulated hernia. It should be considered during the diagnosis of strangulated inguinal hernia in infant. The correct preoperative diagnosis has been reported in only one case and requires awareness of this disease by the clinician in combination with the physical finding of a tender hernia with-



**FIGURE 1:** Ultrasonography scan shows dilated, erectile appendix surrounding with fluid, within an inguinal hernia sac.

out radiological or clinical evidence of obstruction.<sup>4,5</sup> Abdominal pain, fever, and leukocytosis are not helpful in the differential diagnosis, which includes a strangulated hernia or Richter's hernia, and various testicular/scrotal conditions.<sup>4</sup> Preoperative computed tomography (CT) could support the diagnosis, but this examination is not routine in such case.<sup>6</sup>

The CT findings of Amyand's hernia were first reported by Luchs et al previously, the diagnosis of appendicitis within the inguinal hernia sac was invariably made only intraoperatively, almost always being mistaken for an incarcerated inguinal or femoral hernia.<sup>4</sup>

USG is the primary screening modality for examining abdominal and pelvic pathologies in infants, and it has high sensitivity (86%) and specificity (98%) for diagnosing appendicitis in children.<sup>7</sup> The proper treatment is the urgent surgical exploration of the inguinal region. USG imaging is a relatively inexpensive, excellent for non-invasively imaging, fast and radiation-free imaging modality.

Preoperative diagnosis of Amyand's hernia in a child by USG was first reported by Akfirat et al in 1999, and the second case was reported in 2002 by Çelik et al.<sup>8,9</sup> These cases were not evaluated with CT. The diagnosis of Amyand's hernia by CT or spe-

cialty USG helps to surgeon to choice proper surgical treatment without delay. Since it is not often clinically considered, the diagnosis of Amyand's hernia is usually made intraoperatively and is often complicated by gangrene or perforation.<sup>10</sup> The early utilization of USG in these cases probably contributed to the benign clinical course of those patients and was a likely factor in the uncomplicated recovery of the patient in our report. Radiologists should be aware of the imaging findings in Amyand's hernia and the efficacy of US in revealing clinically unsuspected diagnoses that may change patient management.

In conclusion acute appendicitis within an Amyand's hernia can be life-threatening and the patients always require emergency surgery. Incidental appendectomy in the case of a normal appendix is not favored. The surgical treatment for AH is appendectomy through herniotomy with primary hernia repair using the same incision.<sup>2,4</sup> With the aim of sparing the children from the radiation of CT, we suggest that the use of USG could be diagnostic in selected cases with Amyand's hernia. Radiological examinations that are unnecessary and not supportive of diagnosis create risks for patients.<sup>11</sup>

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