

Review

An unusual cause of intra-abdominal calcification: A lithopedion

Daniel Ramos-Andrade*, Catarina Ruivo, M. Antónia Portilha, Jorge B. Brito,
Filipe Caseiro-Alves, Luís Curvo-Semedo

Medical Imaging Department and Faculty of Medicine, University Hospital of Coimbra, Portugal

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Abstract

We report a case of a 77-year-old female who was admitted to the emergency department complaining of diffuse abdominal pain for five days, associated with nausea, vomiting and constipation.

Physical examination disclosed a large incarcerated umbilical hernia, which was readily apparent on supine abdominal plain films. These also showed a calcified heterogeneous mass in the mid-abdominal region, which was further characterized by CT as a lithopedion (calcified ectopic pregnancy). This is one of the few cases studied on a MDCT equipment, and it clearly enhances the post-processing abilities of this imaging method which allows diagnostic high-quality MIP images.

Lithopedion is a rare entity, with less than 300 cases previously described in the medical literature. However, many reported cases corresponded to cases of skeletonization or collections of fetal bone fragments discovered encysted in the pelvic region at surgery or autopsy. It is thus estimated that true lithopedion is a much rarer entity.

The diagnosis may be reached by a suggestive clinical history and a palpable mass on physical examination, while the value of modern cross-sectional techniques is still virtually unknown. Ultrasonography may depict an empty uterine cavity and a calcified abdominal mass of non-specific characteristics, and computed tomography or magnetic resonance imaging are able to reach a conclusive diagnosis and may additionally define the involvement of adjacent structures.

The differential diagnosis includes other calcified pathologic situations, including ovarian tumors, uterine fibroids, urinary tract neoplasms, inflammatory masses or epiploic calcifications.

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Keywords: Lithopedion; Abdominal plain film; Computed tomography; Calcification; Abdomen

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1. Introduction

Lithopedion is a term designating an ectopic pregnancy that evolves to fetal death and calcification [1]. It is a rare occurrence, its incidence being reported as 1.5–2.0% of all ectopic pregnancies, and the incidence of ectopic pregnancy is 0.3–1.0% of the totality of gestations. As a consequence, less than 300 cases

* Corresponding author at: Praceta Mota Pinto/Av. Bissaya Barreto, 3000-075 Coimbra, Portugal. Tel.: +351 239400431; fax: +351 239482840.

E-mail address: daramosandrade@gmail.com (D. Ramos-Andrade).

have been described in the medical literature [2–5]. However, many reported cases of lithopedion corresponded to cases of skeletonization or collections of fetal bone fragments discovered encysted in the pelvic region at surgery or autopsy [6]. It is thus estimated that true lithopedion is a much rarer entity.

If on one side the incidence of ectopic pregnancy is raising due to an increase in pelvic inflammatory disease, tubal surgery and intra-uterine devices, on the other lithopedion formation should become rarer since there is nowadays an easier access to improved pre-natal care with a consequent possibility of an early diagnosis and treatment of patients [1,2,4].

2. Case report

A 77-year-old female of poor socio-economical status was admitted to the emergency department of our hospital with a history of diffuse abdominal pain with an evolution of five days, associated with nausea, vomiting and constipation in the last two.

Her personal and family history was unremarkable. She was nulliparous and did not recall ever being pregnant.

Physical examination disclosed a huge incarcerated umbilical hernia. Bowel sounds were maintained outside the herniary formation.

Laboratory findings (blood counts, biochemical parameters, blood gases) were within normal limits.

An abdominal plain film was obtained in the supine position, both with vertical and tangential X-rays. It clearly showed the hernia with some air-containing bowel loops, and also a calcified heterogeneous mass in the mid-abdominal region (Fig. 1).

The hernia required urgent surgical correction (herniorrhaphy). It contained right and transverse colon, terminal ileum, epiploic fat and also the cecal appendix.

In an attempt to further characterize the calcified lesion, which was mistaken for a retroperitoneal mass during surgery, an abdominal and pelvic computed tomography (CT) examination was requested and performed two days after surgery, in a 4-row multidetector CT equipment (BrightSpeed, GE Healthcare, US) using a non-enhanced acquisition protocol (slice thickness: 2.5 mm, pitch: 1.5, reconstruction intervals: 1.25 mm). It disclosed a lithopedion (calcified ectopic pregnancy), depicting in great detail the fetal anatomy, especially on tridimensional MIP reconstructions (Fig. 2). The measurement of the femur length allowed determining that the gestation proceeded until the 30th week (Fig. 2f).

Due to the advanced age of the patient and because she was asymptomatic, it was decided that the calcified fetus should be left in place and no further surgery would be recommended.

The patient died few weeks after surgery due to a post-operative complication (a nosocomial pulmonary infection that was acquired shortly after surgery).

3. Discussion

Lithopedion is a term derived from the Greek words *lithos* (meaning stone) and *paedion* (meaning child) and describes an extra-uterine dead fetus that has become calcified [5,6]. This rare

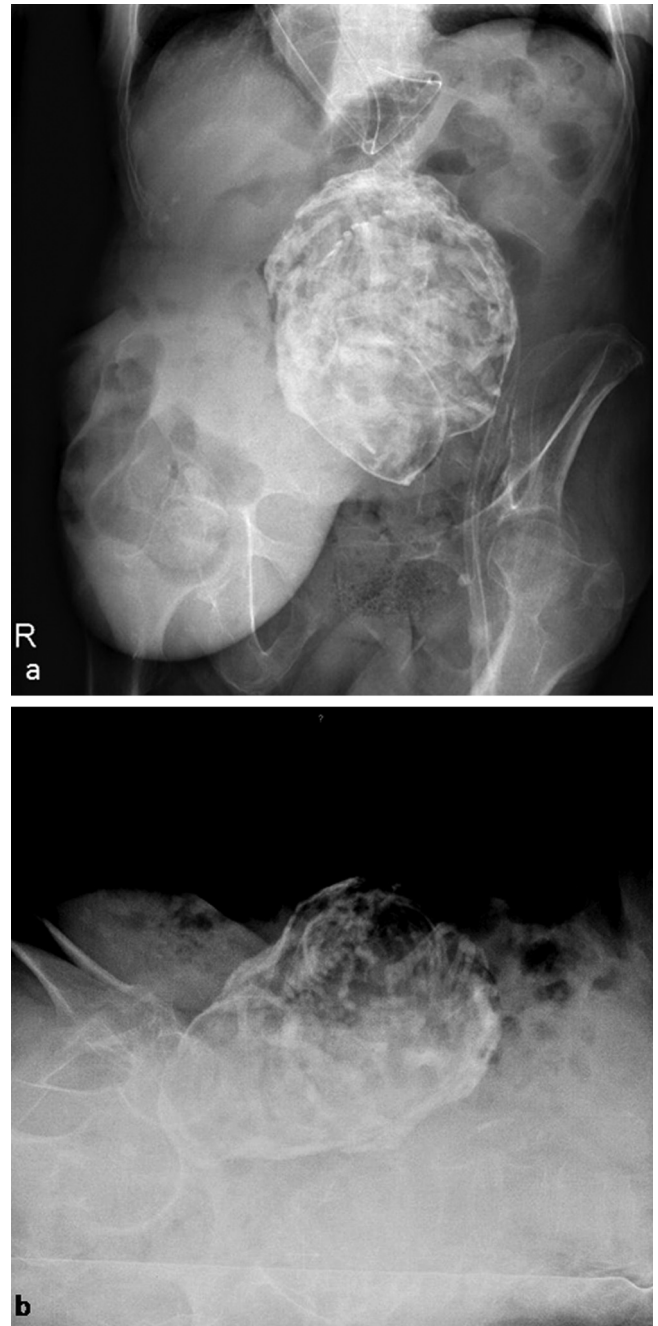


Fig. 1. Plain abdominal film obtained in the supine position, both with vertical (a) and tangential (b) X-rays. It clearly depicts a large abdominal wall hernia with some air-containing bowel loops, and also a calcified heterogeneous mass in the mid-abdominal region corresponding to a lithopedion. Some details of the fetal anatomy may be recognized, such as the head and the rib cage.

condition was first described in the 10th century by Albucasis, a surgeon of the Arabic era of medicine [6].

Abdominal pregnancies result from rupture of a tubal or ovarian pregnancy with implantation in the abdominal cavity [2,3]. They can have a complex course, and sometimes undergo calcification instead of being absorbed [7]. Requisites for the development of a lithopedion include an extra-uterine pregnancy that has escaped medical detection, fetal death after 3 months of pregnancy, a fetus that has remained sterile, and local

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