Lithopedion—A Rock Baby

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Abstract

Keywords

- calcified fetus
- lithokelyphopiedion
- lithokelyphos
- stone child

Lithopedion is a rare condition that occurs only in ectopic pregnancy and in <1% of all pregnancies. In this condition, the fetus dies and is not absorbed by the mother's body but escapes the maternal immunity by forming calcified shell around it. The dead fetus remains in the maternal body for considerable period without complications.

Introduction

Lithopedion is a Greek word (lithos, meaning rock, and pedion, meaning child) that means stone child. It is an ectopic, unnoticed, forgotten, old, and calcified pregnancy. It is a rare pathology described for the first time in the 10th century by Albucasis, a Spanish-Arabian physician and surgeon. The fetus dies between 3 and 6 months in 27% of the cases, and 7 and 8 months in another 27% of the cases.¹

Lithopedion often remains asymptomatic for several years. The duration of the retention of the dead fetus varies from 4 to 60 years. The patients seek medical help mainly due to secondary presenting symptoms like abdominopelvic pain, mass per abdomen, or symptoms of bladder/rectal compression. The diagnosis is often not suspected on clinical examination; a simple radiological examination like abdominal X-rays can lead to a definitive diagnosis.

Case Report

A 76-year-old female presented to our department for the evaluation of long-standing history of mass per abdomen for around 50 to 55 years and chest pain for 1 day. On clinical examination, there was an irregular immobile abdominopelvic mass. No history of constipation or melena or dysuria was present. No history of bleeding per vagina, white discharge,

or mass per vagina was present. The biochemical investigations showed normal liver function test and renal function test results.

Imaging Features

An ultrasound examination was performed on Philips - Affiniti 70G (manufactured in USA), which showed a well-defined heterogeneous lesion with irregular discontinuous peripheral rim calcification in the lower abdomen and pelvis predominantly on the right side measuring 13 cm × 13.7 cm (TR × CC) containing few calcified structures within as follows (► Fig. 1A–C):

1. A fairly well-defined avascular spherical heterogeneous, predominantly hypoechoic, lesion with few curvilinear hyperechoic components and peripheral rim calcification resembling fetal skull with its contents, corresponding to gestational age of ~35 weeks (biparietal diameter, 7.9 cm; head circumference, 31 cm).
2. Few linear calcified structures resembling long bones (femur length, 7 cm) corresponding to ~36 weeks and 2 days.
3. Few calcified structures resembling spinal elements.

The inferior extent of lesion could not be determined. The abdominal organs were otherwise normal.

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Fig. 1 (A and B) An ultrasonography (USG) showing spinal elements inside the curvilinear calcific structure and long bone. (C) USG showing fetal skull with its contents. (D and E) Lateral and anteroposterior radiograph showing a calcified mass in the lower abdomen. A few long bones, cranium, and spine are also seen. (F) Coronal and (G) axial plain computed tomography images showing fetal skeletal elements within the calcified shell.

Based on the ultrasound findings, it was decided to perform a plain radiograph. On plain radiograph, a calcified lesion in the lower abdomen showing few long bones, cranium, and spine resembling calcified fetus was found (►Fig. 1D, E). On plain computed tomography (CT [Siemens Somatom Definition Edge 128 slice machine, manufactured in Germany]), intra-abdominal fetal skeletal elements within a calcified membrane was noted (►Fig. 1F, G). Overriding of skull bones was also noted. The hyperechogenic component inside the fetal skull on ultrasonography was hyperdense on CT, suggesting calcified gyri. A thin bony septum was noted in the cervical and lumbar spinal canal, suggestive of diastematomyelia. Uterus is atrophic and visualized separately from the lesion.

The patient was a known case of ischemic heart disease with ejection fraction of 40%.

Considering associated cardiac ailment and minor symptoms, she was advised a conservative management with regular follow-up.

Discussion

Lithopedion is an abdominal pregnancy in which the fetus dies and calcifies. Secondary abdominal implantation is one of the rarest consequences of ruptured tubal pregnancy and the formation of lithopedion out of it is even rarer. Its frequency varies from 1.5 to 1.8% of abdominal pregnancies and in 0.00045% of all pregnancies. Less than 300 cases have been described in the past 400 years in the world medical literature.¹ In the available literature, the age of the patients varies from 23 to 100 years. Two-thirds of the patients were often over 40.² The duration of the retention of the fetus varies from 4 to 60 years.³ Our patient was 76 years old and the retention period of calcified fetus is estimated at ~55 to 58 years.

Lithopedion is increasingly becoming rare nowadays due to improved access to prenatal consultations leading to early diagnosis and treatment. Lower socioeconomic conditions and level of education of a population may lead to a delay in the diagnosis. This results in the nondiagnosis of ectopic pregnancy and its transformation into a lithopedion.¹ In some rare cases, the diagnosis was made during a surgical procedure. The description of the lithopedion remains a harsh reminder of the poor antenatal care that currently prevails in the developing world.

The common risk factors include infertility, previous pelvic infection, congenital anomalies of the uterine tubes, endometriosis, and previous ectopic pregnancy.

Kuchenmeister classified lithopedion into three types:⁴

1. Lithokelyphos (stone sheath or egg shell), in which the membranes alone are calcified and form a hard shell surrounding the fetus. The fetus may undergo slight change only, or may be completely skeletonized, but is not involved in the process of calcification.
2. Lithokelyphopedion (stone sheath child), in which both the membranes and the fetus are calcified.
3. True lithopedion (stone child), in which the fetus is infiltrated with calcium salts and calcification of the membranes is negligible.

According to this classification, our case is classified as lithokelyphos.

Oden and Lee, in 1940, enumerated the following conditions necessary for the development of a lithopedion:⁴

1. The pregnancy must be extra-uterine.
2. The fetus must survive in the abdomen for more than 3 months (otherwise it is absorbed).
3. The condition must escape medical notice.
4. The fetus must remain sterile.
5. The necessary conditions for the deposition of calcium must be present, that is, minimal and sluggish circulation.

The diagnosis of lithopedion is dependent on a careful clinical history, aided by the finding of a hard pelvic mass on physical examination and by roentgenography. A metallic sound is carefully introduced into the uterine cavity before the roentgenogram is made, to establish the relation of the uterine cavity to the shadow of the fetal skeleton.

If this is carefully done and a current intrauterine pregnancy excluded, no harm can result to the patient.⁴

Calcified fibroid and teratoma remain the close differential diagnosis.

Sometimes a simple investigation like plain radiograph is sufficient to arrive at a diagnosis.

Plain CT is confirmatory in cases with equivocal findings on plain radiograph.

Management

There is currently no consensus concerning the management of such patients. Treatment plans must be individualized and take into account the presentation, age, and symptoms of the patient. It is reasonable to manage asymptomatic patients with regular physical examination and imaging.² The surgery is frequently simple with low bleeding.

Nevertheless, extreme care is recommended in the surgical procedure with the help of a general surgeon or urologist, due to the possibility of large quantities of abdominal blood vessels and intestinal adherence.

Some associated complications have been reported after a long asymptomatic evolution: urinary bladder and rectum perforation; extrusion of fetal parts through the abdomen wall, rectum, and vagina; and intestinal obstruction (due to collision of fetal parts with the intestine or adherence).

Conclusion

Lithopedion is rare nowadays due to improved access to prenatal consultations leading to early diagnosis and treatment. It can be managed conservatively or through surgical excision, depending on the risk–benefit ratio. Surgery is the treatment of choice if not contraindicated.

Conflict of Interest

None declared.

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