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Case Report

Infantile presentation of the canal of Nuck hernia containing uterus and ovary: a case report ☆☆☆★★★

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ABSTRACT

Indirect inguinal hernias of the canal of Nuck containing the uterus and the ovary is rare entity in girls presenting as labia major masses at infancy and early childhood. Authors present a case of the canal of Nuck hernia in a 5-month-old girl presented as palpable lump in the right labia majora which was diagnosed by ultrasonography. Ultrasound is the noninvasive diagnostic modality of choice in for evaluation of palpable external genital masses in children.

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Background

Hernia of canal of Nuck, a rare congenital entity, results from the incomplete closure of processus vaginalis in female infants through which pelvic contents herniate into the inguinal canal to the labia majora [1].

Indirect inguinal hernia of the canal of Nuck containing the uterus and the ovary is a rare congenital entity among females in infancy and early childhood which present as a labia majora mass [2–4]. Ultrasound is the noninvasive diagnostic modality of choice which can well depict the abnormality [3,5,6]. Various differentials are described for a labial mass in a female

child including an inguinal hernia, hydrocele, lymphadenopathy, Bartholin gland cyst, infection/abscess, inguinal gonad, endometriosis as well as a benign and malignant neoplasm [5–7]. Surgical correction is almost always the treatment of choice in children [3,8].

Case presentation

A 5-month-old child presenting with a palpable lump in the right labia major was referred for ultrasound examination to the radiology department. The parents reported that the

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Fig. 1 – Photograph of the inguinal region and external genitalia: There is swelling of right labia majora. No evidence of erythema or other skin changes are present.

lump was reducible and appeared when the child cried. The child was a full-term infant without any perinatal complications. She had no previous history of hospitalization or medical/surgical history.

On physical examination, swelling of right labia majora was noted. The contents were reducible with pressure. No evidence of tenderness and erythema was noted in the region (Fig. 1).

Ultrasonography done with high frequency linear probe demonstrated a reducible, indirect inguinal hernia containing a homogeneous soft tissue echogenicity structure with a

central echogenic line (the uterus) as well as a round structure in the vicinity with internal cystic components (the ovary and follicles) (Fig. 2). The uterus and right ovary were not found in their normal anatomic locations. No bowel loop or lymph node was seen in the herniated cavity. The sonographic findings were typical of indirect inguinal hernia containing the uterus and right ovary.

Discussion

Inguinal hernias are common findings in infancy and early childhood with a reported incidence ranging from 0.8% to 4.4% [1,9]. However, hernia of the canal of Nuck presenting as a labial mass, is a rare entity encountered in the female pediatric group [10]. It results from an embryological anomaly where there is failure of partial or complete obliteration of processus vaginalis in a female [6]. The processus vaginalis normally obliterates within the first year of life [11]. If it remains patent in a female, it forms a potential space (canal of Nuck) which provides a direct pathway for herniation of pelvic organs and/or accumulation of collections through the inguinal canal to the labia majora [6]. The herniated organs may include bowel, omental fat, fluid, ovary, fallopian tube, and the urinary bladder [1]. Hernias containing the uterus are very rare [1,4,12]. One research showed that only 1 in 35 patients with surgically confirmed hernias of the canal of Nuck were reported to contain the uterus and an ovary, proving its rarity [3]. Another article reported only one case of herniated uterus and bilateral ovaries out of 3 confirmed canal of Nuck herniation cases [4]. A rare finding was inguinal hernia of left side containing bilateral ovaries, uterus, and small bowel loops [9]. As in our case, the patient demonstrated herniation of uterus and right ovary adding to the rare cases of uterine herniation of canal of Nuck into the labia majora.

Clinically, patients present with a labial mass/swelling in the groin or labial region that may or may not be associated with pain [4,6].

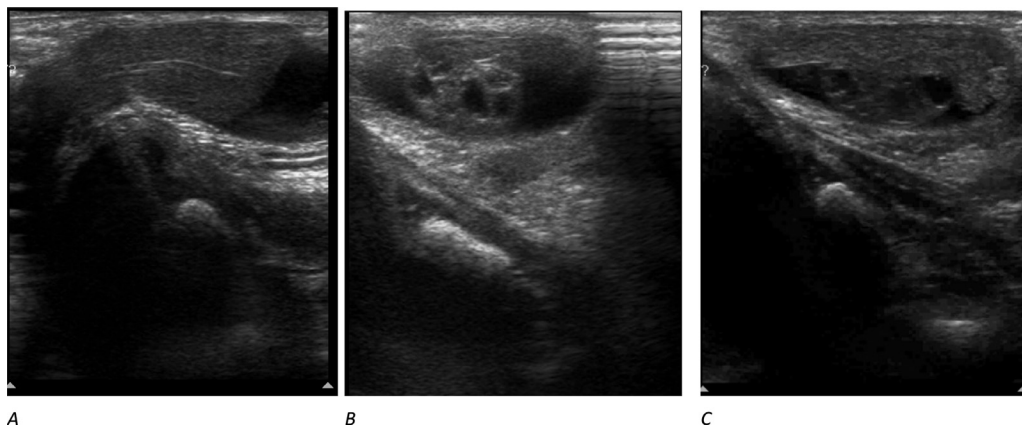


Fig. 2 – Ultrasonography images obtained with high frequency linear probe. (A) Herniation of a (reducible with real time) homogeneous, soft tissue echogenicity structure (the uterus) with a central echogenic line (the endometrium). (B) A round structure (ovary) with internal multiple tiny anechoic areas (follicles) is also seen herniated to the region. (C) In this image both the ovary and uterus are seen with mild fluid. No bowel loop or lymph node was seen in the herniated cavity.

Ultrasound is the ideal modality for evaluation inguinal hernias in the pediatric group whereas computed tomography and magnetic resonance are more commonly used for the adult population [3,5,6,9,13]. To exclude strangulation and incarceration, color and pulsed Doppler evaluation is helpful [11]. For inguinal hernias, the contents of the hernia sac are easily recognized sonographically, because of the specific features of the structures. Ovaries are solid oval structures with a characteristic homogeneous echo pattern and multiple tiny cysts representing follicles [13]. The uterus is an elongated structure with myometrium and endometrium.

The differentials for an inguinal mass in a female are wide and include inguinal hernia, hydrocele, lymphadenopathy, Bartholin gland cyst, infection/abscess, inguinal gonad, endometriosis as well as a benign and malignant neoplasm [5-7].

Surgical correction is required in almost all inguinal hernias in children [3,8] while in adult population, surgical correction is only used if patients are symptomatic and conservative approach is used in asymptomatic patients [8].

Conclusion

Hernia of canal of Nuck as a result of patent processus vaginalis, containing the uterus is a very rare entity, where in our case herniation of the uterus and right ovary was seen adding up to the number of few reported cases. Ultrasound is the modality of choice for diagnosis and surgical correction is the treatment approved by majority of pediatric surgeons.

Ethics approval and consent to participate

The manuscript has got an exemption letter from the institutional ethical review committee as case reports are exempted from review according to institutional rules.

Consent for publication

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review of the Editor-in-Chief of this journal on request.

Availability of data and material

The data of the case is available for the journal editor on request.

Authors' contributions

Hidayatullah Hamidi: Concept of the manuscript, overall supervision of the manuscript, Mariam Rahimi: Review of literature, writing the manuscript.

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