

Case Report

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# A Rare Occurrence of Ovary-Containing Hernia of Canal of Nuck in a Female Child of Two Years



PB Nichkaode<sup>1</sup> and RK Diwakar<sup>2\*</sup>

<sup>1</sup>Department of Surgery, CCM Medical College & Hospital, India

<sup>2</sup>Department of Radio Diagnosis, CCM Medical College & Hospital, India

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\*Corresponding author: RK Diwakar, Department of Radio diagnosis. CCM Medical College & Hospital, India, Tel: 91-8818892083; Email: rkdiwakar49@yahoo.co.in

## Abstract

We present a case where non-suspicion of the presence of ovary in an inguinal hernia, lead to error in the diagnosis in a child of two years age. Proper sonographic examination in longitudinal as well as transverse plane with 6-12 MHz linear probe and the use of CDU may prove to be key factors for correct diagnosis. The size of the ovary and the presence of cystic lesions are helpful in the diagnosis.

**Keywords:** Inguinal canal; Hernia; Ovary; Ultrasonography; Color Doppler; Canal of Nuck

## Introduction

The incidence of inguinal hernia in females is 1.9%, the ratio of boys to girls being 6:1 [1]. Congenital hernia in female child is a considerable rarity. Failure of obliteration of canal of Nuck results in an indirect inguinal hernia.

## Case Report

The parents brought a female child of two years age in the outpatient Department of Surgery, having a swelling in left groin which was noticed by them a week ago. Physical examination findings were solid-looking inguino-labial reducible swelling in left inguinal area, increasing in size during standing and crying. It reduced in size in lying down position. Positive cough impulse was present. Systemic examination was normal. Chest radiograph was normal. Haematological examination and urinalysis were normal. Ultrasound examination with 5MHz linear probe (Figure 1) detects 1.8 x 0.9cm oval structure in the left inguinal region. Possibility of this being the ovary was not suspected.



Figure 1: 1.8cmx0.9cm oval structure in left inguinal canal.

Surgical exploration of left inguinal canal revealed the presence of the ovary (Figure 2) in the sac which was gently cleared. The ovary appeared normal for age and was reposed back in the abdomen (Figure 3). Herniotomy was done and the wound was closed in layers. The colour of the surface of the ovary was normal. Post-operative period was uneventful and the discharge was given on 3rd post-operative day.



Figure 2: Left ovary in the inguinal canal seen at surgical exploration.



Figure 3: The ovary with the ligament after surgical dissection.

## Discussion

### Embryology

In the female embryo, the ovaries descend into the pelvis but do not leave the abdominal cavity. The upper portion of the gubernaculum becomes the ovarian ligament, and the lower portion becomes the round ligament, which travels through the inguinal ring into the labium majus. If the processus vaginalis remains patent, it extends into the labium majus and is known as the canal of Nuck. In the normally developing female foetus, the canal of Nuck is usually obliterated by 8 months of gestation. Failure of complete obliteration of this structure results in an indirect inguinal hernia of the canal of Nuck [2]. In women, the round ligament is attached to the uterus near the origin of the fallopian tube and a small evagination of parietal peritoneum accompanies the round ligament through the inguinal canal to the labium majorum. This small evagination parietal peritoneum named the canal of Nuck in women is the equivalent of the processus vaginalis in men [3].

### Incidence

The incidence of ovary as content of inguinal hernia in a paediatric patient of 2 years age is very uncommon. In 15-20% of the female patients with inguinal hernias, the herniation sac may contain the ovaries and/or the fallopian tubes [4].

### Sonographic diagnosis

In the case of a hernia containing ovary in the canal of Nuck in female infant, early diagnosis is important because incarceration of the ovary is common and has been reported in up to 43% of cases [4]. Therefore, a female infant with an inguinal hernia should be evaluated to determine whether the ovarian contents are present. We believe that the ultrasonographic finding of solid masses containing multiple cysts of varying size is a useful sign for the identification of ovary containing hernias [4-6].

Ultrasonographic findings of ovary torsion are an enlarged, mass-like ovary with heterogeneous echogenicity that contains multiple peripheral cysts and no blood flow within the ovary [7,8].

### Conclusion

To avoid a surprise finding at operation, the possibility of ovary in hernia sac in inguinal canal should be kept in view. 5-7MHz linear probe or high resolution 10-12MHz linear probe should be used. Careful colour flow study should be done for early diagnosis of incarceration or torsion.

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