

## CASE REPORTS

### DERMOID CYST IN AN ECTOPIC OVARY

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#### INTRODUCTION

Lachman and Berman [1] were the first to suggest the elimination of the terms supernumerary and accessory ovary. They introduced usage of term ectopic ovary, which can be divided into three categories; Post surgical implant, post inflammatory implant and true embryologic ectopic. Ovarian maldescent occasionally occurs in patients with a normal uterus. The incidence is reported to be 20% when the uterus is absent (Rokitansky - Kustner - Muller syndrome) and as high as 42% in cases of unicornuate uterus. Bilaterality occurs more often in women with congenital absence of the uterus [2]. Patients with an ectopic ovary may present with primary amenorrhoea, dysmenorrhoea, cyclical abdominal pain or heaviness in abdomen. If associated with a unicornuate uterus, there are increased obstetric complications; early miscarriage, ectopic pregnancy, abnormal fetal presentation, intrauterine growth retardation and premature labour [3].

#### CASE REPORT

A 30 years old lady, resident of Murree, presented with heaviness and dragging sensation in left lumbar region of 10 months duration. There were no urinary or bowel complaints. She had been married for 12 years and 10 months and had four children. The eldest child was 12 years old and youngest 03 months old. Her menstrual cycle was regular (3/30).

The plain radiograph of abdomen showed a fat attenuation lesion in the left lumbar region. Its walls showed curvilinear

calcification superiorly. There were multiple well formed teeth in it (fig. 1). Abdomino-pelvic ultrasound revealed a mass in left lumbar region, containing a solid hyperechoic component, suggesting the presence of fat. Some areas demonstrated acoustic shadowing, in keeping with a focus of calcification. The left ovary was not demonstrable in its normal adnexal location. The uterus and right ovary appeared normal (fig. 2). The findings of computed tomography of abdomen included an intraperitoneal, fat attenuation lesion in left lumbar region. It measured about 8.0 cm x 8.0 cm x 7.0 cm. It contained multiple rounded and ovoid calcific foci (the characteristic appearance of teeth was better seen on plain radiograph). Its walls showed focal curvilinear calcification. The lesion showed no contrast enhancement (fig. 3).

Laboratory findings included haemoglobin-10.4 gm/dl, total leukocyte count;  $12 \times 10^9$ , Erythrocyte sedimentation rate, urine routine examination and blood sugar random were within normal limits. The tumor was resected and diagnosis of dermoid cyst confirmed on histopathology. Conventional radiography, ultrasound and computed tomography all contributed to clinching an accurate diagnosis.

#### DISCUSSION

From an embryological point of view, the presence of ectopic ovary can be explained by a lack of caudal descent of the gonads into the true pelvis [4]. Of the three phases of ovarian descent the first comprises of migration of the germ cells from the yolk sac to the posterior body wall at level of 10th thoracic level to enter the genital ridge. In the second phase the germ cells differentiate into oogonia then primary oocytes and become arrested until puberty. Descent of the ovary to reach the

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pelvis occurs in the third phase. The ovary descends along a ligamentous cord called the gubernaculum that is attached inferiorly to the inguinal region. The gubernaculum becomes incorporated into the uterine wall at the point of entry of the fallopian tube and persists in the adult as the ovarian ligament and the round ligament.

The case under discussion had a peculiar presentation of the presence of a dermoid cyst (benign cystic teratoma) in an undescended ovary. In approximately 80% of the cases, this lesion occurs in young women (20 to 30 years of age) and represents 18% to 20% of benign ovarian tumors. In most cases, dermoid cysts are unilateral, but they are bilateral in 10% to 15% of cases [5].

Dermoid cysts (DC) can be composed of elements descending from all three of the germinal layers. However in ovarian dermoid cysts, ectodermic differentiation frequently occurs. Typically, the diameter of an ovarian dermoid cyst is <10 cm and is rarely >15 cm. On histologic examination, lipidic substance, hair, sebaceous secretions, hair follicles, and eggshell calcifications are seen in 50% of cases; real organoid structures (teeth, fragments of bone) in 30% of the cases.

At plain radiography of the abdomen, a dermoid cyst can be easily detected if calcifications are present. Sometimes a typical radiographic finding of DC, "fat floating" appears (corresponding to the "fat-fluid level" on ultrasound and CT features); this radiographic sign is a horizontal line between 2 soft tissues of different opacities. It is caused by oily and sebaceous fluid floating over serous and over intracystic debris. Ultrasound appearances are often characteristic because of the presence of a highly reflective dermoid plug (a Rokitansky nodule), which is the solid element within the cyst that contains hair follicles, sebaceous glands, fat, and calcified or ossified elements. It usually forms an acute angle with the wall of the cyst and can produce acoustic shadowing due to the presence of hair, calcium, or bone [6]. A fluid-fluid level may be detected due to sebum floating on an aqueous, more echogenic,



Fig. 1: Multiple well formed teeth are visible on plain x-ray abdomen.



Fig. 2: The uterus and right ovary appear normal on ultrasound examination.

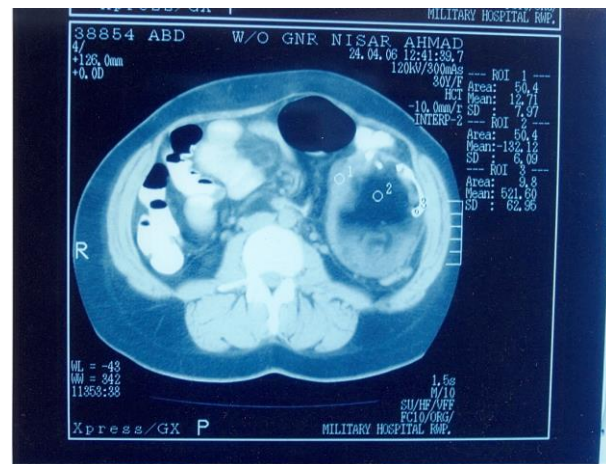


Fig. 3: CT Scan abdomen shows multiple rounded and ovoid calcific foci.

layer. Sonographic differential diagnosis of ovarian dermoid cysts include hemorrhagic cysts, tubo-ovarian abscesses and ectopic pregnancies. Ovarian dermoid cysts are the most commonly missed ovarian neoplasm on sonography, often due to the "tip of the

iceberg" sign, in which the back wall of the cyst is obscured by acoustic shadowing, causing the echogenic Rokitansky nodule to be misinterpreted as bowel gas [7].

On computed tomography, the fat content and the well-defined cystic appearance is highly suggestive of an ovarian dermoid cyst [8]. Whereas most dermoid cysts contain some soft-tissue components, the presence of a large (>10 cm), irregular soft-tissue mass within the tumor should raise the suspicion of malignant transformation. Contrast enhancement is also suggestive of malignant change [6].

With magnetic resonance imaging, the intracystic sebum and the adipose tissue usually present in a Rokitansky nodule typically have high signal on T1-weighted images and intermediate signal on T2-weighted images. These findings are not diagnostic of ovarian DCs, as they can also occur in intracystic hemorrhage (endometriomas). Hemorrhagic products in an endometrioma can also produce a layered appearance on T2-weighted images or, sometimes, a gradated signal loss called "shading," a finding that is not seen in DC. The loss of high signal on T1-weighted images with fat suppression is diagnostic of DC, allowing it to be differentiated from hemorrhagic lesions. Areas of calcification are of low signal on all sequences on magnetic resonance imaging. A "salt-and-pepper" speckled appearance can sometimes be seen within a DC, which is thought to be due to multiple chemical shift artifacts at fat/water interfaces [9].

The commonest complication of ovarian dermoids is torsion. Less common complications include rupture causing chemical peritonitis, suppuration, malignant degeneration and oleo-keratin granuloma in peritoneum. Gynecologic referral is

recommended upon their diagnosis as resection is carried out to avoid these complications.

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