

## Case Report

# Ovarian mature cystic teratoma containing a structure resembling a miniature human body (Homunculus)

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### Introduction

The vast majority of ovarian teratomas are mature and cystic. But very few reported cases are found where partial human body like structure (homunculus) is described in a teratoma. Teratoma (literally monster tumor) was considered to be a conceptus in the past. It is a well established fact that this tumor develops from totipotent germ cells of ovary with no paternal contribution and consequently contains all three germ cell layers, ectoderm, mesoderm and endoderm. The Latin word homunculus literally means a structure resembling a miniature human body and designates a human being not produced by pregnancy and this definition is used in morphological entities<sup>1</sup>.

We report mature cystic teratoma containing a fetus like structure (homunculus)

### Case report

A 25 year old unmarried woman was admitted on 24<sup>th</sup>

March, 2005 with history of oligomenorrhea for the last 4 years and with ultrasound and CT scan reports showing left adnexal tumor (terato-dermoid). She was suffering from oligomenorrhea since 2001 for which she had ultrasound studies in July 2001, February 2002 and February 2003 as advised by doctors of private clinic. All reports were suggestive of polycystic ovarian syndrome. She was obese and was also suffering from type II diabetes mellitus. She was under treatment with glyciophage for few cycles. Physical examination showed a freely mobile intra-abdominal lump in the left iliac fossa arising from the pelvis. It was about 20 weeks size with soft cystic consistency and smooth surface. In October 2004, ultrasound showed left sided dermoid cyst measuring about 5.9 x 7.9cm. CT scan done on 9<sup>th</sup> December, 2004 confirmed the above diagnosis and the findings revealed a mixed attenuating lower abdominal and pelvic mass measuring 8.8 x 6.8 x 7.1 cm having predominantly fatty components, small cystic areas, eccentric mural nodule-like solid components with calcifications, dental elements and a few internal septa suggestive of teratodermoid (Figure 1).

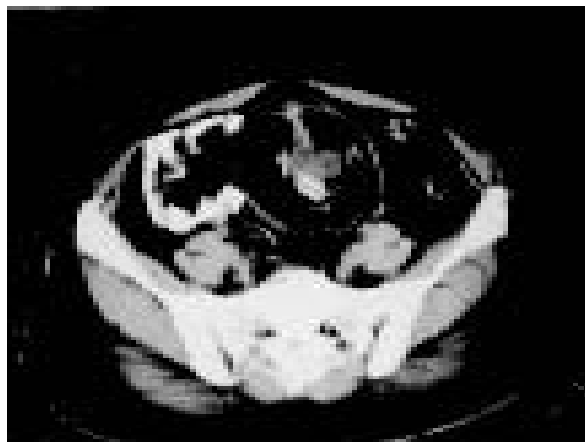
Routine laboratory tests at admission were normal except her markedly elevated blood sugar level. On exploration, done on 5<sup>th</sup> April, 2005 there was left sided ovarian tumor measuring about 10 cm. Uterus and both tubes were normal. Right ovary was bulky and whitish in color. Left sided ovarian cystectomy was done

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**Figure 1.** CT scan showing mixed attenuating lower abdominal and pelvic mass measuring about 8.8 x 6.8 x 7.1 cm having predominantly fatty components, small cystic areas, eccentric mural nodule-like solid components with calcifications and dental elements suggestive of teratodermoid.

preserving healthy ovarian tissue for future fertility. The postoperative course was uneventful and the patient was discharged on 11<sup>th</sup> April, 2005. She reported for regular follow up till 7<sup>th</sup> July, 2005 and showed no abnormality.

#### *Macroscopic findings*

The ovarian mass composed of a thin walled cyst measuring about 10 cm in diameter with grey membranous surface and containing a fetiform mass with areas of skin covered with hair (Figure 2). The tumor mass showed fetal buttock like structure and all four limb buds with fingers along with nails in the two



**Figure 2.** The cut open ovarian cyst shows a fetiform mass (homunculus) with areas of skin covered with hair along with four limb buds.

lower limb buds. The areas in the podalic fetal part resembled sacral and genital region (Figure 3). On cut section, the mass was filled with cheesy sebaceous material and hair with four limb buds. It also contained fat, bone and cartilage like material.



**Figure 3.** Homunculus showing skin covered with hair and all four limb buds with fingers along with nails in two larger lower limb buds. The areas in the podalic fetal part resembled sacral and genital region.

#### *Microscopic findings*

The tumor was benign teratoma of ovary composed of ectodermal, mesodermal and endodermal elements. It was lined by skin and its appendages and had mature adipose tissue. Cartilage, bone and nerve bundles were present. All the elements were mature (Figure 4 and 5).



**Figure 4.** Section showing skin and its appendages and mature adipose tissue. Magnification 100x.



**Figure 5.** Section showing cartilage. Magnification 100x.

### Discussion

Mature cystic teratomas of ovary are mostly benign and do not always attract detailed attention<sup>2</sup>. But their quasi-magical distortion of human self-image has attracted endless curiosity and speculation throughout history. However, precise analysis of such tumors may significantly enhance our understanding of both pathogenetic origin and normal human development<sup>2</sup>. Chromosome analysis usually reveals a diploid karyotype. The i(12p) chromosome may occasionally be found and it is proposed that the majority originate in germ cells after meiosis<sup>1,3</sup>. There are a number of

conflicting theories to explain histogenesis of teratomas, most probable ones being misplaced blastomere and pathogenetic development of a germ cell<sup>1</sup>. A review of literature revealed that in many cases of mature cystic teratomas of ovary containing homunculus the caudal region is typically more developed than the cephalic region and vice-versa<sup>1</sup>. But in our case both caudal and cephalic regions were more or less equally developed.

The case has been reported because it is an extremely rare one which represents the final stage of differentiation of multipotential (stem) germ cell line into practically all the mature tissues present in the adults, sometimes with highest degree of organized development exhibited by a single germ cell and subsequent benign behavior.

### References

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