



# Holy C.O.W.!

It's...

Clinical Question of the Week #18  
October 27th, 2008 through November  
3rd, 2008

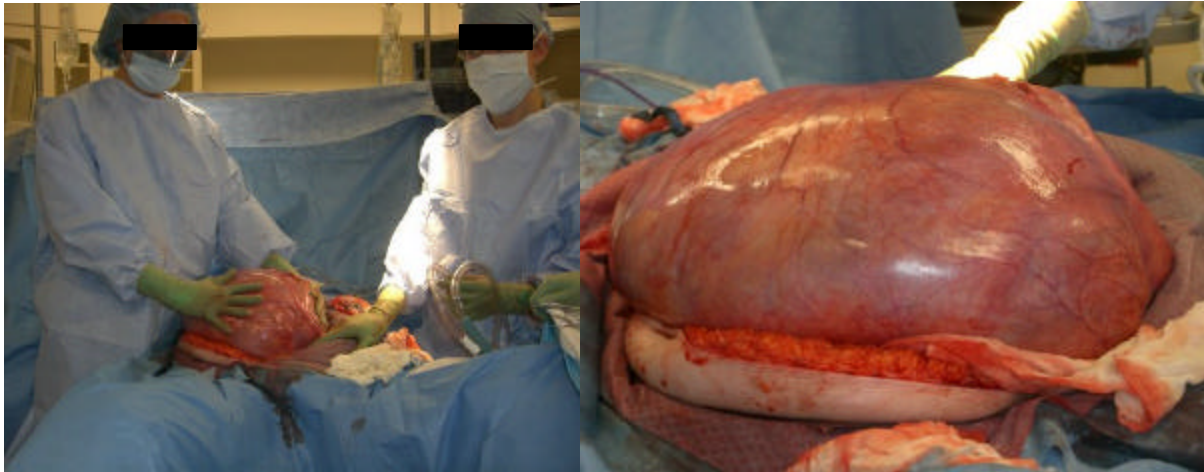


Welcome to the Halloween edition to Holy C.O.W.! Clinical Question of the Week!  
Please e-mail your answers to Kuo, Tim, Wendy, and Kevin ([klian@mednet.ucla.edu](mailto:klian@mednet.ucla.edu);  
[tprovias@mednet.ucla.edu](mailto:tprovias@mednet.ucla.edu); [wsimon@mednet.ucla.edu](mailto:wsimon@mednet.ucla.edu); [kbreger@mednet.ucla.edu](mailto:kbreger@mednet.ucla.edu)) by 0800 on Monday,  
November 3rd, 2008. The resident or intern with the most correct answers at the end of each month will  
receive a prize!

**Case:** A 36-year-old woman is brought in by police to the Emergency Department after she is found wandering the streets in a robe and slippers. At the time of interview, the patient reports histrionically that she is carrying the Devil's child. She is admitted to the Medicine service. With further interview, she also reports that she has been pregnant for several years and believes that the time is coming soon when she will deliver the child to wreak havoc on mankind. On examination, she is obese and agitated. Her abdomen is enlarged and a large mass is palpated with some discomfort. A CT abdomen/pelvis was obtained, and she subsequently underwent exploratory laparotomy (shown).

\*\*Special thanks to Dr. Emily Berry of OHSU for providing this case.





Images taken at laparotomy.

**Questions:**

**1. What is the diagnosis?**

Mature cystic teratoma. The most common type of germ cell tumor, teratomas are a varied group of tumors that show differentiation toward somatic-type tissues that can be typical of either adult or embryonic development. Components of the teratoma can range from immature to well-differentiated, and are foreign to the anatomic site in which they are found. There are three types of teratoma: mature (cystic or solid, benign), immature (malignant), and monodermal (or highly specialized).

Mature and immature cystic teratomas are described below. Monodermal, highly specialized teratomas are rare tumors consisting of a predominant cell type, the most common of which are stroma ovarii (thyroid tissue resulting in clinical hyperthyroidism in 25-30% of cases) and carcinoid (with carcinoid syndrome in approximately 33% of cases), rarely with mixed cell type. Mature solid teratomas are rare, heterogeneous, and benign, containing some organized tissue from all three cell layers – management is similar to mature cystic teratomas. Immature solid teratomas (also known as malignant teratoma, teratoblastoma, and embryonal teratoma) are rare, consisting of varying degrees of mature and immature tissue and are considered malignant. The presence of a yolk sac in these instances reflects more aggressive tumor behavior. (1)

**2. What is the origin of the mass?**

Mature cystic teratomas are cystic and composed of adult-type tissues, and are also known as dermoid cysts. They contain tissue of ectodermal (skin, follicles, sebaceous glands), mesodermal, and endodermal origin. This type of teratoma accounts for greater than 95% of all ovarian teratomas, and are almost invariably benign. They are the most common ovarian tumor in the second and third decades of life and are bilateral in 12% of cases. (0.5)

**3. Describe the findings seen on histopathology and the rough likelihood of malignancy in the mass.**

Patients are generally found with an asymptomatic abdominal mass, however some may present with pain or symptoms of ovarian torsion. Rupture of dermoid cyst contents is rare, but may result in peritonitis, shock, and hemorrhage. Diagnosis may be made by ultrasound, with confirmation by CT or MR imaging.

Pathology reveals multicystic mass containing hair, teeth, or skin mixed into sebaceous, sticky, and often foul-smelling material. A solid prominence is noted to be at the junction of the teratoma

and normal ovarian tissues (known as Rotikansky's protuberance) and is notable for being the site of greatest cellular variety and thus must be carefully examined for malignancy.

Approximately 1% of mature cystic teratomas have malignant somatic-type tissue elements, most commonly squamous cell carcinoma, although any cell component may undergo malignant degeneration. Risk factors for malignant transformation include age >45 years, tumor diameter >10cm, rapid tumor growth, and certain findings found on imaging such as low intra-tumor resistance Doppler flow. Other malignancies may include basal cell carcinoma, melanoma, adenocarcinoma, sarcoma, neuroendocrine tumor, and thyroid cancer. (1)

**4. What is the treatment?**

The preferred treatment is cystectomy when possible, which allows for preservation of ovarian tissue, definitive pathologic diagnosis, and avoidance of rupture, torsion, or development of malignant components. If the tumor is malignant, treatment is tailored to the malignant cell type. (0.5)