General Data

- Gender : Female
- Birthday and age : 72-09-04 ; 20 y/o
- Occupation : Student
- Date of Admission : 92-05-11

Chief complaint

- Loss of menstrual period for 2 months

Present illness (1)

- The 20-year-old female had a GYN/OBS history of G0P0 SA0 AA0; her menstrual cycle interval : 28 days; duration : 5-6 days According to her statement, she missed menstrual period for 2 months. Therefore, she visited NTUH for help. After the examination, there was a huge mass noted in the abdomen r/o ovary tumor.Therefore, the advanced treatment was suggested.

Present illness (2)

- However, NTUH could not perform surgery in recent days. Then, she visited our OPD for help. According to the sonar examination, there were a abdominal mass (grossly 22cmx 20cm) and a upper abdominal mass (12.3cmx 13.6cm). Besides,CT report showed teratoma suspected. Then, she was admitted for further treatment.

Past and Personal History

- Previous Admission and Operation history : denied
- DM : denied
- HTN : denied

Physical examination

- Consciousness : clear
- Vital signs : TPR : 37.5/72/18 , BP : 122/76
- Chest : breathing sound clear
- Heart : RHB without murmur
- Abdomen : **a huge mass palpated (15x12cm)**
- Extremities : no pitting edema

Lab datas

- WBC : 4760/uL (5200-12400)
- RBC : 4.02x10.e6/uL (4.2-6.1)
- HGB : 11.0g/dL (12-18)
- HCT : 31.9% (37-52)
- Urine : Occult blood (2+)

Image

- Sono : upper abdominal mass (12.3x13.6cm)

  with heterogenous components

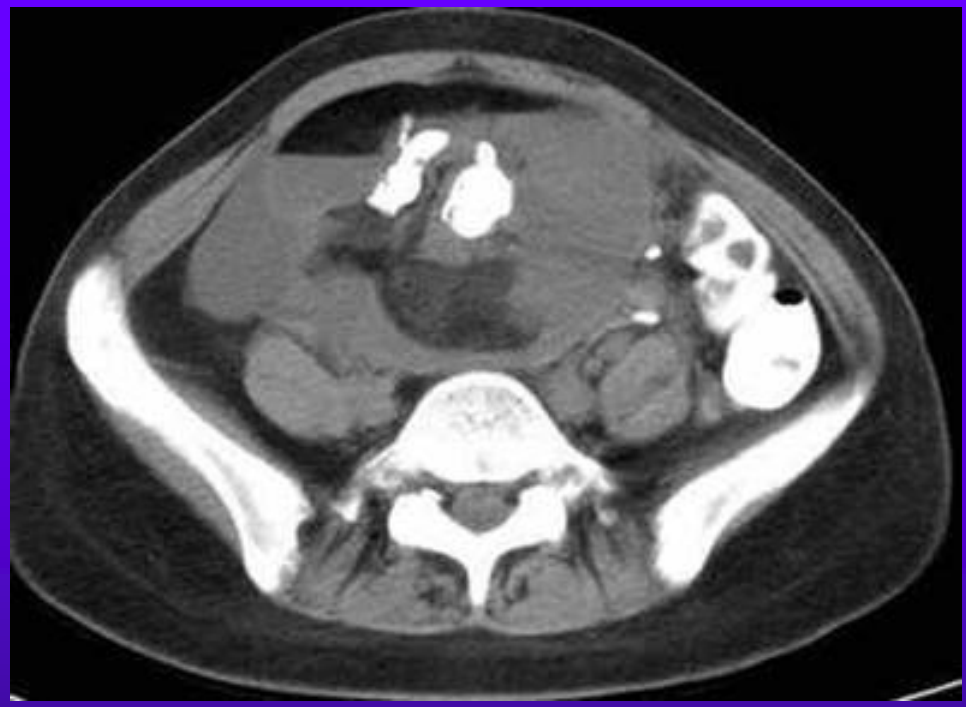
Image

- Lower abdominal mass (22 x 20cm) with heterogenous component

Radiological finding

- KUB : increased radiopaque density with some calcified nodules at RUQ of abdomen and pelvic cavity region

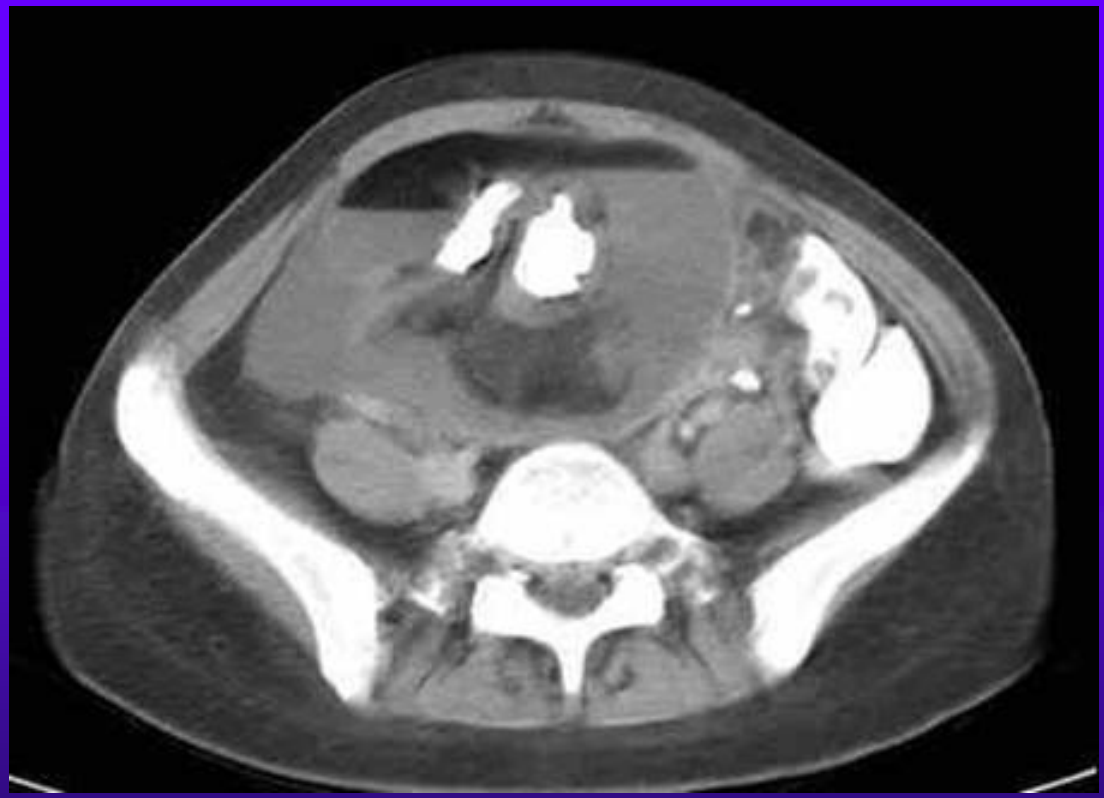
Radiological finding



CT :

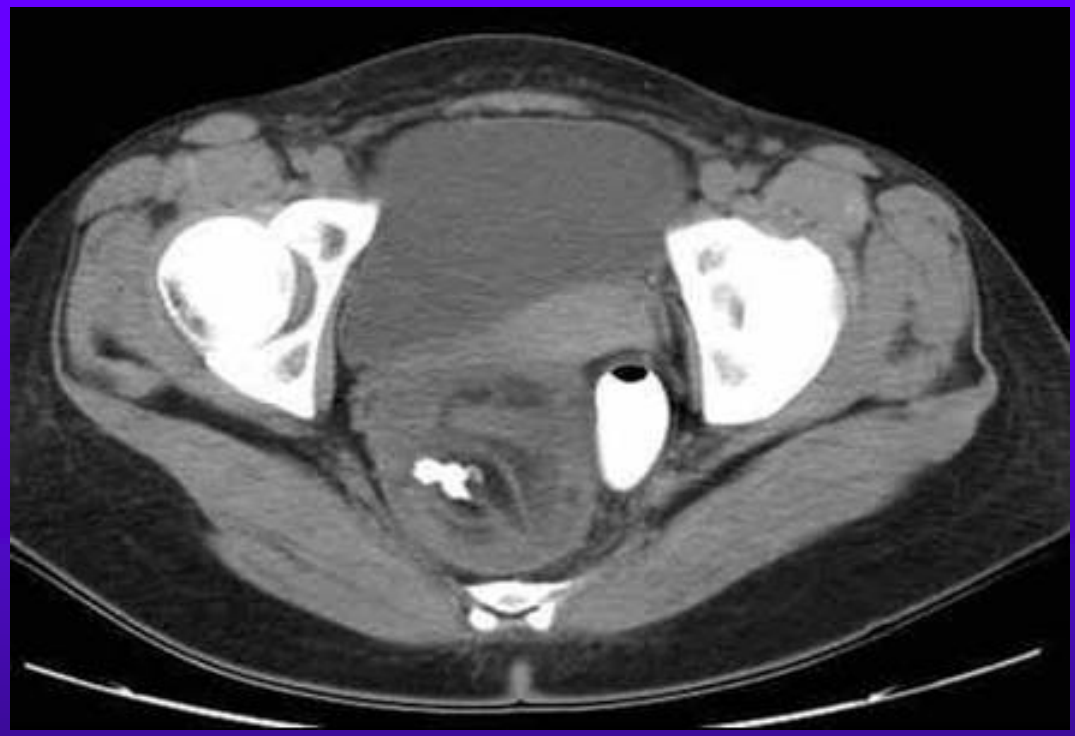
well-defined, huge mass (13x17x24cm) in the right abdomen and pelvic cavity. The mass contains fatty components, cystic components, and mild -enhanced, soft-tissue components and bony structures. A large teratoma is considered.

Radiological finding



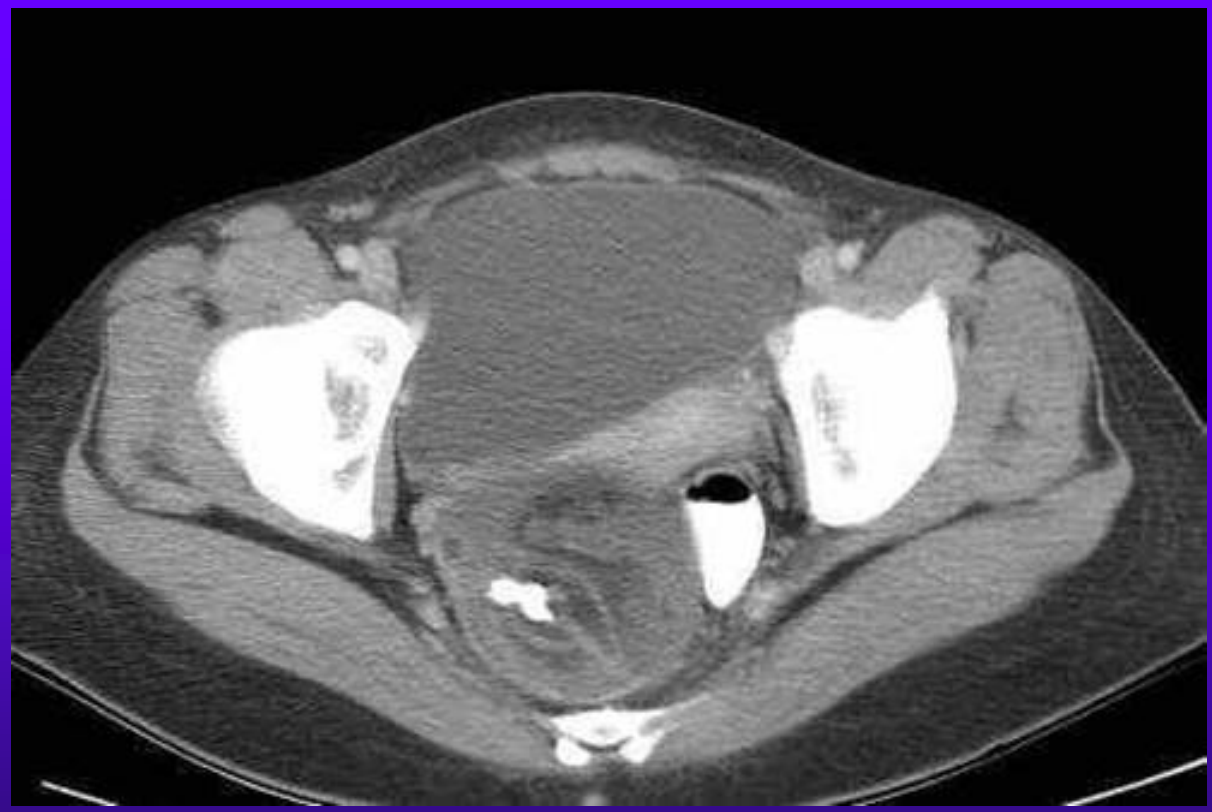
- Post-contrast

Radiological finding



- Another mass (6.9 x 8.3cm) is noted at the presacral region.

Radiological finding



- Post-contrast

Differential diagnosis

- Ectopic pregnancy
- Leiomyoma
- Teratoma
- Ovarian cyst

Endometrioma

- CT or KUB should not be relied on for the diagnosis.
- In US imaging :

  A cystic mass with homogenous diffuse low-level echoes
- A definitive diagnosis can be made only through histologic examination,which reveals both endometrial glands and stroma.

Ectopic pregnancy

- X-ray is of no clinically useful for the diagnosis of ectopic pregnancy
- CT findings are nonspecific for ectopic pregnancy.
- Beta-HCG test is preferred for the diagnosis of ectopic pregnancy.

Leiomyoma, Uterus

- Conventional radiographs have a limited role in the diagnosis of uterine leiomyomas.
- CT also has a limited role in the diagnosis of uterine leiomyomas.(calcification)
- **US** is the imaging modality of choice in the detection and evaluation of uterine leiomyoma.
- The most frequent appearance is that of **concentric, solid , hypoechoic mass**.

Pelvic inflammatory disease (TOA)

- Radiographic findings are noncontributory.
- In CT imaging, a TOA is depicted as a mass. The mass may be regular and contain debris. There may be an associated low attenuation area that may represent an adjacent or contained fluid-filled fallopian tube.
- US imaging findings in TOAs are usually nonspecific.

Teratoma

- US findings :

  include regionally bright echoes, hyperechoic lines and dots, and fluid-fluid levels.

- CT imaging

  Complex appearance of teratomas, with dividing septa,internal debris, variable attenuation, and distinct calcification.

Ovarian cyst

- Endovaginal ultrasound is the most practical way to check ovarian masses. **The internal cystic structure may be found to be simple (just fluid filled), complex (with areas of fluid and more solid material), or totally solid (without obvious fluid).**

Ovarian cyst

- CT scan aid in the assessment of the extent of

  disease.
- MRI is used for problem solving when ultrasound

Impression

- Teratoma : According to the ultrasonic and CT imagings

Operation method

- **Bilateral partial oophorectomy**
- Left lower huge ovarian tumor :

  size : over 50x50cm ; multiple lobe ; sticky yellowish fluid with hair and solid content
- Right upper ovarian tumor :

  size : 10x10cm ; sticky yellowish with solid content

Pathological findings

- Microscopically, all sections show a picture of mature cystic teratoma composed of mature epidermis, respiratory epithelium, adnexal structure, brain tissue, cartilage and bone in a disorganized pattern of the cystic wall. Dental structure and melanin production are also found in the left ovary.

Discussion

- Teratoma :

  Teratomas are made up of a variety of parenchymal cell types representative of more than a single germ layer, usually all **3**.

  The most common location is **sacrococcygeal**

  The most common gonadal location is **ovary**.

Discussion

- Mature cystic teratoma accounts for 10-20% of all ovarian neoplasms.

  They are the most common ovarian neoplasm in patients younger than **20 years**.

Discussion

- Complications of ovarian teratomas include **torsion**, rupture, infection, hemolytic anemia, and malignant degeneration
- **Asymptomatic** mature cystic teratomas of the ovaries have been reported at rates of 6-65%.
- When symptoms are present, they usually consist of abdominal pain (47.6%), abdominal mass or swelling (15.4%), and abnormal uterine bleeding (15.1%).

Discussion

- Lab data :

  AFP and **beta-HCG** levels may be indicative of malignancy, as these values are within reference ranges in most patients with benign teratomas.

Discussion

- Ultrasonic findings of ovarian teratomas are shadowing echo densities, regionally bright echoes, hyperechoic lines and dots, and fluid-fluid levels.
- CT scan reveals the complex appearance of ovarian teratomas, with dividing septa,internal debris, variable attenuation, and distinct calcification.

Discussion

- MRI can sufficiently differentiate lipid density from other fluid and blood and may be another useful adjunct for diagnosis of ovarian teratomas, with an accuracy of 99%.

Discussion

- Surgical methods :

Mature cystic teratomas of the ovaries should be removed by **simple cystectomy** rathar than salpingo-oophorectomy

Some papers supports **laparoscopy** as an acceptable approach. Benefits include reductions in postoperative pain, blood loss, hospital stay, and total cost. Risks include prolonged operative time, increased potential need for a prompt second staging procedure.