A pyometra is a collection of pus distending the uterine cavity. It occurs principally when there is a stenosed cervical os, usually due to uterine or cervical malignancy and treatment with radiotherapy. However, other causes include:

- Fibroid degeneration.
- Endometrial polyps, endometrial carcinoma.
- Cervical occlusion following surgery (eg, prolapse surgery,[1] endometrial ablation[2]).
- Senile cervicitis.
- Puerperal infections.
- Uterine compression sutures used for postpartum haemorrhage to avoid hysterectomy - eg, the B-Lynch suture.
- Congenital cervical anomalies.[3]
- Forgotten intrauterine device.
- Genital tuberculosis.
- Radiotherapy.
- Following egg retrieval in IVF.[4]

Epidemiology

- Pyometra is a rare disorder in humans, with a reported incidence of 0.01-0.5% of gynaecological patients.[3]
- However, it is more common in elderly, postmenopausal women, usually with concurrent medical conditions.[5]
- Pyometra is very rare in children but may occur.[6]

Presentation

Pyometra may exist without symptoms and is found as an incidental finding on imaging or post-mortem. Symptoms and signs may include:

- Blood-stained purulent vaginal discharge.
- Symmetrical uterine enlargement.
- Lower abdominal pain.
- Pyrexia (rare).

Extremely rarely, a pyometra spontaneously perforates and the woman will present with an acute abdomen.[3] Features on examination may be indistinguishable from other causes of peritonitis, with rigidity, tenderness rebound and guarding.[7]

Differential diagnosis

Differentiate from other causes of uterine enlargement:

- Uterine causes such as fibroids and adenomyosis.[8]
- Endometrial causes such as polyps, endometrial cancer, haematometra and gestational trophoblastic neoplasia.
- Congenital abnormalities.

Other causes of blood-stained vaginal discharge such as vaginosis, vulvar vestibulitis and a variety of genital infections may need to be excluded.
In perforated pyometra, other causes of acute abdomen will need to be ruled out. Perforated pyometra should be considered as a differential diagnosis in women with pneumoperitoneum and fever.\[9\]

**Investigations**

**Microbiology**
- Vaginal swabs may be negative in up to 50% of cases, since the principal organisms are anaerobes and these are difficult to culture.
- If tuberculosis is suspected, tuberculin testing, culture, histology, hysterosalpingogram and PCR may be indicated.

**Imaging**
- Ultrasound is usually the initial form of imaging. CT and MRI scanning may be required for the diagnosis and assessment of perforated pyometra.\[10\]
- Doppler scanning is helpful in detecting blood flow changes when pyometra complicates endometrial cancer.\[11\]
- Pneumoperitoneum on plain X-ray (sub-diaphragm free gas) or CT scan shows evidence of spontaneous perforation.\[12\]

**Management**
- Hysterectomy may be advised but many women are managed with cervical dilation and drainage of the collection, with regular monitoring to detect recurrent or persistent disease.\[5\] Increasingly, interventional radiology may offer an alternative to surgery.\[13\]
- Antibiotics are only necessary if there is evidence of invasive infection, in the form of generalised malaise, pyrexia, or altered laboratory parameters. If antibiotics have to be used, seek advice from a microbiologist, and preparations covering aerobic and also anaerobic bacteria should be used.
- Tubercular pyometra should be treated with appropriate anti-tubercular chemotherapy.

**Complications**
- Spontaneous perforation appears more likely where there has been delay in treatment. In a Hong Kong series, this occurred in 5 of the 27 women studied.\[5\]
- Hypoalbuminaemia is a predisposing factor for pyometra perforation.\[9\]

**Prognosis**

Prognosis will depend both on the underlying cause (eg, malignancy) and whether or not spontaneous perforation has occurred. Prompt recognition and treatment of the condition improves the prognosis considerably.\[7\]

**Further reading & references**

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