MR imaging findings in Fallopian tube diseases

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Learning objectives

To review the differential diagnosis of common and uncommon pathologic conditions of the fallopian tubes and to describe the magnetic resonance imaging (MRI) key findings for distinguishing isolated hydrosalpinx from other tubal pathologic entities.

Background

The dilated fallopian tubes can be easily detected with sonography, with high sensibility, but low specificity, as well as by computed tomography, but when they have an atypical manifestation or are associated with other adnexal lesion, the use of MRI can help in the diagnosis. On MRI we can study an extended field of view, characterize the nature of the tubal contents, by typifying the signal intensity of the tubal fluid; look for findings, tubal or peritubal, suggestive of benign or malignant lesions, and depict an ovary separate from the mass, or as part of it. Thus, we can differentiate an isolated dilated tube from a complex adnexal mass, as it is found in case of inflammatory pelvic disease, endometriosis (the two most frequent causes of tubal pathology), ectopic pregnancy or neoplastic diseases, either benign or malignant. This approach can lead to a conservative management in most cases of benign pathology or set the need for an aggressive surgical treatment when malignant pathology is suspected.

Imaging findings OR Procedure details

MRI technique:

The MRI protocol used for the fallopian tubes is the standard used for indeterminate gynaecologic pathology, with pelvic phased-array coils. The patient is placed in the supine position and given a spasmolytic agent to reduce artefacts due to bowel peristalsis.

The study starts with T2-weighted basal sequences, in the axial, sagital and coronal planes, and T1-weighted without and with fat suppression in the axial plane. These five sequences allow identification of the pathological findings, and the relationships with
adjacent structures. They also enable classification of the lesions into several types such as: solid, cystic, fat-containing, hemorrhagic, proteinaceous, mucoid, or fibrous.

When further assessment is required intravenous contrast agent is administered.

In our institution MRI is performed with a 1.5 T unit (Philips Intera Achieva) with a phase-array coil (4 channels), including: T2-weighted turbo spin echo images (repetition time msec/echo time msec= 7000-7600/120, echo train length of 18) on the axial, sagittal and coronal plane; T1-weighted turbo spin echo images (repetition time msec/echo time msec= 525/12.5, echo train length of 5) and T1-weighted turbo spin echo SPIR, with fat suppression images (repetition time msec/echo time msec= 525/12.5, echo train length of 5) without and with intravenous gadolinium-DOTA.

**STEP 1: Detect tubal pathology: general features of tubal diseases.**

Normal or non-dilated fallopian tubes are not visible on MRI unless they are outlined by pelvic fluid (Figure 1). on page 11

**- Dilatation: how we find it?**

Dilatation occurs when the tube is distally blocked due to an occlusion of its fimbriated end and fills with fluid, whose nature depends on the cause of the occlusion, and secondarily distends. Less common causes of dilatation can be distal obstruction, in the uterus or the vagina.

On MRI dilated tubes are depicted as tubular structures with convoluted, C or S shape, with incomplete thin linear septa or plica folds, longitudinally oriented, that corresponds to incompletely effaced mucosal or submucosal plicae. These plica folds are thin, display low signal intensity on T2WI, and constitute a finding highly specific for tubal dilatation (Figure 2) on page 11 [1, 2]. The dilatation can be irregular, with constrictions, convolutions or tortuous lumen. They are represented by the "waist" and "beak" signs (Figure 3). on page 12

Other findings in tubal dilatation are the synechiae, which are seen as fine strands in the lumen that do not enhance (Figure 4). on page 13
- **Unilateral or bilateral?**

Almost all entities affecting fallopian tubes can affect both sides, either synchronically or metachronically. Thus, it is mandatory to rule out contralateral involvement.

- **Congenital anomalies.**

Agenesis or hypoplasia of any part of the genital tract, including tubes, may occur in isolation or in combination. Some congenital anomalies, such as imperforated hymen may cause lower genital tract obstruction, with secondary hematometra and hematosalpinx.

- **Ovaries: normal ovarian tissue separate or included in the adnexal mass?**

Depiction of normal ovarian tissue gives rise to the suspicion of intrinsic tubal pathology. If it is not possible to separate ovarian tissue to the adnexal mass the differential diagnosis includes the complex adnexal lesions.

**STEP 2: Characterize tubal contents.**

- **Serous or water-like fluid**

On MRI the signal intensity of the fluid is low on T1WI and high on T2WI (Figure 5). on page 14

- **Pus**

This fluid has an amorphous signal loss on T2WI and as is the case with hematosalpinx, it can appear layered due to sedimentation or gravitational effects. On T1WI this fluid has a variable signal, more often low to intermediate, and can be occasionally indistinguishable from hydrosalpinx with serous fluid on MR. It is better depicted on fat-suppressed images. A dilated tube with pus is known as *pyosalpinx*. Other accompanying findings in pyosalpinx are thick and enhancing walls, with swollen and edematous plicae, secondary to infection (Figure 6). on page 15

- **Blood**
Dilated tube with blood more frequently shows high signal intensity on T1WI, best depicted on T1 fat suppressed images. It can be uniform or layered as occurs in endometriosis. On T2WI acute blood can be of intermediate to high signal intensity, and on sub-acute stage of low signal intensity due to susceptibility effects of hemosiderin and iron. When associated with endometriosis typical T2 "shading" can be seen, but is not always present. A dilated tube with blood is known as hematosalpinx (Figure 7) on page 16.

Hematosalpinx can occur in endometriosis, sometimes as the only finding, adnexal torsion, ectopic pregnancy, tubal neoplasm or associated to some müllerian duct anomalies [1, 3].

- **Endoluminal soft tissue**

The presence of a soft tissue mass within the tubal lumen compels us to rule out a neoplasm. For this reason it is very important to administer intravenous contrast. An enhancing solid mass, either focal or multiple, unilateral or bilateral, must set the diagnosis of tubal malignancy if isolated. More frequently, a tubal enhancing solid mass corresponds to metastasis from other gynaecologic neoplasms, and therefore there are some other accompanying findings.

The differential diagnosis has to be established with endometrial tissue (polyp), as seen in intraluminal type of endometriosis.

- **Ectopic pregnancy**

Although it is extremely rare for MRI to be needed for diagnosis of an ectopic pregnancy, it can occur. It is diagnosed, in the appropriate clinical setting, when an enhancement of a dilated tubal wall with an acute hematoma or gestational sac-like structures is seen.

**STEP 3: Is it an isolated tubal diseased or a complex adnexal mass?**

- **Tubal obstruction.**

Tubal obstruction is followed by fluid accumulation and tubal dilatation, generally known as hydrosalpinx. It can be an isolated finding secondary to chronic pelvic inflammatory
disease and endometriosis most frequently, or adhesions from prior surgery; or be an additional finding in complex adnexal lesions, such as endometriosis, pelvic inflammatory disease or pelvic malignancies. Distal tubal obstruction is much more common than proximal obstruction.

When the contents corresponds to inspissated pus or blood is called pyosalpinx and hematosalpinx respectively.

When the diameter is approximately 10 cm hydrosalpinx may mimic multiloculated ovarian tumours, such as cystadenomas.

-Inflammatory process: pelvic inflammatory disease.

Pelvic inflammatory disease (PID) is one of the most common causes of tubal pathology. It is due to an ascending infection, sexually transmitted, affecting upper female genital tract, including endometrium, fallopian tubes and ovaries, unilateral or bilateral. Typically is caused by *Neisseria gonorrhoeae* or *Chlamydia trachomatis*, although up to 30-40% of cases are polymicrobial. Actinomyces and tuberculosis account for rare causes of PID and may cause tubo-ovarian abscesses, rather than simple tubal disease [1, 4].

It can lead to the onset of infertility, pelvic pain, elevated risk of ectopic pregnancy and peritonitis.

In the acute phase clinical symptoms and signs and laboratory tests are relevant for the diagnosis, although clinical presentation is highly diverse, ranging from asymptomatic to severe pelvic pain. Transvaginal ultrasound is helpful to support the diagnosis, when symptoms are present. In case of nonspecific findings, lack of symptoms in the acute phase, with presentation in the subacute or chronic phase, without a clear clinical history, or suspected complications of PID, MRI with contrast material is the modality of choice. An early diagnosis is crucial as there is a significant potential risk for irreversible damage to the fallopian tubes.

At an early stage of the disease the fallopian tubes are swollen, edematous and congested. This process, known as salpingitis, is depicted on MRI as enhancing thickening walls tubes. This is followed by a suppurative form, as the lumen fills with pus, leading to *pyosalpinx*, and tubal fimbriae may adhere to the ovary (Figure 8 on page 17, 9 on page 18).
On MRI an engorgement of ovarian pedicle, mesh-like strands in the pelvic fat and enhancement of the adjacent peritoneum may also be seen [1].

Although very uncommon, another cause of acute pelvic pain that has to be differentiated from salpingitis, can be an isolated tubal torsion, as it can appear as a dilated tube with thick walls.

When the infection reaches the ovary, the process is called salpingo-oophoritis. Initially tubes and ovaries show inflammatory changes but remain separate. If the process ensues, a major and serious complication is the formation of a tubo-ovarian abscess (Figure 10). on page 19lt appears on MRI as a thick walled complex, heterogeneous fluid-containing, adnexal mass, with irregular inner contours, internal septa, gas, fluid or a fluid-debris level. The fluid can be proteinaceous or hemorrhagic, with high signal intensity on T1WI, and heterogeneously high signal intensity on T2WI, depending on its viscosity or protein concentration [3, 4]. Usually this inflammatory mass is surrounded by an ill-defined area of high signal intensity on T2WI that represents edema and exudates. A high signal intensity rim in the innermost portion of the tubo-ovarian abscess on T1WI has also been reported, showing marked enhancement on post contrast imaging, and is believed to correspond to granulation tissue admixed with hemorrhage [5, 6].

Up to 20% of tubo-ovarian abscess lack clinical symptoms and signs, so that at the time of diagnosis is has to be differentiated from adnexal neoplasms, either benign or malignant [7]. The role of MRI with contrast material is the depiction of all this inflammatory changes, in spite of clinical presentation, and therefore the confirmation of the regression of pelvic disease in response to antibiotic therapy.

Rare causes of tubo-ovarian abscess, more difficult to differentiate from ovarian malignancies are due to chronic infectious forms of actinomycosis, tuberculosis and xantogranulomatous adnexal inflammation, all three manageable with medical treatment [6].

Adnexal actinomycosis is a chronic suppurative infection by Actinomyces israelii, characterized by an invasive nature, associated with long-standing use of intrauterine contraceptive devices, that responds to high doses of penicillin. It forms abscesses with abundant granulation tissue and fibrosis, therefore appearing as solid or solid and cystic masses, with low signal intensity on T2WI of the solid component representing the fibrous tissue. Due to its invasive nature tracts and sinuses are formed, depicted as solid and linear lesions with low signal intensity on T2WI, and adjacent organs can be involved, making the differential diagnosis with ovarian or other pelvic malignancies very difficult. Nevertheless they are commonly indistinguishable from usual tubo-ovarian abscesses [6].
Genital tract involvement can occur in a small percentage of female patients with tuberculosis. Salpingitis is usually caused by hematogenous or lymphatic spread, or even by peritoneal dissemination. When it progresses a tubo-ovarian abscess is formed, and in these cases the differential diagnosis with ovarian cancer with carcinomatosis is very challenging as both present with similar clinical scenario as well as radiological findings. MR imaging can depict a cystic or solid and cystic adnexal mass, usually bilateral, with ascites, intraperitoneal fat infiltration, and peritoneal thickening. At a late stage dense adhesions with the uterus or other adjacent organs can be seen, as fibrotic tissue is formed. Lymph nodes are also seen, sometimes with necrotic centre [6].

*Endometriosis.*

About 30% of women with endometriosis have associated tubal abnormalities present at laparoscopy [8]. Endometriosis is a major cause of peritubal adhesions.

It can present as an isolated finding, either as hydro or hematosalpinx, or be a part of a complex adnexal mass, when there are endometrial cysts or deep pelvic endometrial tissue implants, involving ovaries and fallopian tubes.

- **Serosal and subserosal type:**

Functional serosal and subserosal endometrial implants cause repeated intraluminal hemorrhages, and ensuing fibrosis, with resultant formation of peritubal adhesions, and thus hydrosalpinx (Figure 11) on page 20 [2].

When the tubal content is blood, as a consequence of intraluminal haemorrhage the finding is consistent with hematosalpinx (Figures 11 on page 20, 12 on page 21, 13 on page 22). It may be the only imaging finding indicative of endometriosis (Figures 14, 15) on page 24. The signal intensity of the contents in these cases is very high on T1WI, but do not always show T2 shortening typical of endometrial cysts. Debris can be present in the dependent portion of the tube (Figure 14) on page 23 [8].

- **Intraluminal type:**

The intraluminal type of endometriosis is much less frequent than the serosal and subserosal kind. It presents as ectopic endometrial tissue located in the interstitial portion of the tube. MRI depicts round, small soft tissue nodules or polyps, which may enhance, without concomitant dilatation or tubal occlusion if it presents as an isolated finding, or can be associated with other endometriotic lesions (Figure 16 on page 25). Those polyps
can be uni- or bilateral, and usually measure less than 1 cm. They are not associated with any symptoms or infertility when isolated [9].

- **Primary tubal cancer.**

Primary malignant neoplasms of the fallopian tubes are extremely rare and are reported to occur in 0.3-1.1 % of all gynaecologic cancers [3]. Most are adenocarcinomas, and usually are unilateral, although bilateral involvement can be present in 20% of patients [10].

It can be detected at an early stage because of the early manifestation of clinical symptoms, such as pain, caused by the tubal distension, vaginal discharge or abnormal bleeding [3, 11]. Nevertheless it can be relatively small, although symptomatic, and therefore missed at physical examination. MRI is the technique of choice to study and stage those neoplasms.

The pattern of growth can be nodular, papillary, infiltrative or massive [10]. It grows into the tubal lumen, but depending on the fluid produced by the tumour, it can associate tubal dilatation or not. If hydrosalpinx is absent it can present as a small or lobulated enhancing mass, occasionally with small areas of cystic necrosis or hemorrhage (Figure 17) on page 26 [11]. When the tumour produces fluid, and the fimbriated end is blocked, it is collected in the tube, leading to the onset of hydrosalpinx. In those cases the lesion is depicted as a large solid and cystic mass with a tubular or tortuous shape [10]. Occasionally focal solitary or multiple nodularity within a hydrosalpinx can be found, or be the only finding (Figure 18 on page 27). If the ends of the tube are not blocked, it associates intrauterine fluid and/or peritumoral ascites.

The intraperitoneal spread is similar to that of ovarian cancer, and lymph node metastases may be found more often than in ovarian cancer [3].

The differential diagnosis has to be made basically with primary ovarian tumours, and metastases, most commonly from direct extension of gynaecologic cancers (Figure 19 on page 28, 20 on page 29). A clinical difference between primary ovarian and fallopian tube neoplasms is the early manifestation of symptoms in the latter, although due to its rarity is often misinterpreted [11]. In can be difficult to determine the origin when the ovary and dilated tube are not separate, as both ovarian and fallopian tube neoplasms can present as a large cystic mass with a solid component, misinterpreting a tubal neoplasm as an ovarian cystoadenocarcinoma. In these cases is essential to typify the cystic
component as a loop of the dilated fallopian tube. In case of bilateral involvement to make the correct diagnosis it is very important to exclude ovarian or endometrial cancer to rule out secondary tubal pathology. It can be very difficult to differentiate primary bilateral involvement from unilateral tubal carcinoma with contralateral metastasis [10].

Another important differential diagnosis has to be made with salpingitis, basically with subacute or chronic forms, such as tuberculosis infection, as not only clinical presentation but also radiological findings can be very similar.

- **Salpingitis isthmica nodosa (SIN).**

This is a pathologic condition also known as tubal diverticulum, characterized by irregular benign extensions of the tubal epithelium into the myosalpinx, associated with reactive myohypertrophia and sometimes inflammation. It can present as a nodular thickening or swelling of the isthmus. It is usually diagnosed by hysterosalpingography when a normal tube in size and position shows numerous small round luminal outpouchings of contrast material in the isthmic portion, that represents the diverticula protruding from the lumen into the myosalpinx. As tubes do not dilate in this entity, it is not visible on MRI.

There is an association, although not clear, between SIN and PID. It is also associated with infertility and ectopic pregnancy [12].

**STEP 4: Exclusion of other pelvic pathology.**

Pelvic pathology in women includes not only gynaecologic entities, thus differential diagnostic considerations has to be made with other problems.

When normal ovarian tissue is recognizable tubal pathology has to be differentiated from para-ovarian fluid-filled diseases, such as para-ovarian cysts (Figure 21 on page 30), peritoneal inclusion cysts; lymphangiomias (Figure 22) on page 31 or lymphoceles, appendiceal mucocele (Figure 23 on page 32), etc.

If the ovary is not visible, the differential diagnosis includes the complex adnexal lesions, or ovarian pathology that mimics tube dilatation, as serous or mucinous cystoadenomas, or carcinomas.
Fig. 1: Normal fallopian tube in woman with carcinomatous ascites. Right fallopian tube is visible because it is surrounded by free fluid (arrows).
Plica folds

Incompletely effaced mucosal and submucosal plicae

Fig. 2
Beak and waist signs

S-shape dilated tubular structure with constrictions and convolutions

Fig. 3
Synechiae

Fig. 4
Hidrosalpinx

Dilated tube, with beak and waist signs (*). Thin walls.

Water-like fluid: \( \uparrow \uparrow T2; \ \downarrow \downarrow T1 \)

Fig. 5
Pyosalpinx

Right dilated C-shape tube. Thick enhancing walls.

Fluid: intermediate SI on T2; √ T1 (not as low as water)

Fig. 6
Hematosalpinx

Dilated convoluted tube. Thick and irregular walls. 
Fluid: ↑T2 (acute stage), ↑↑T1 FS

Dilated C-shape tube. Thin and regular walls. 
Fluid: ↓T2 (sub-acute stage), ↑↑T1, ↑↑↑T1 fat sat

Fig. 7
Fig. 8: Unilateral pyo-hydrosalpinx. 25 yo woman, asymptomatic, referred by the gynaecologist with an adnexal right mass seen on routine transvaginal sonography. CA 125 was elevated (806 U/ml). MRI depicts a dilated right fallopian tube (arrows), with an irregular thickened enhancing wall, and effaced mucosal folds. The fluid has some signal loss on T2WI, and intermediate signal intensity on T1 fat suppressed (FS). Both ovaries are normal (asterisks). No free fluid is seen. Left tube is not visible.
**Unilateral PID: subacute pyo-hydrosapinx.**  
**Post antibiotic therapy**

**Fig. 9:** Cont. Figure 8. Post antibiotic therapy control demonstrates resolution of the findings, with some free fluid within the normal limits. CA 125 also returned to normal limits.
**Fig. 10:** Pyosalpinx associated with bilateral tubo-ovarian abscesses. 41 yo woman admitted to our emergency department because of sudden pelvic pain, nausea, fever and vomits. White cell count was elevated, and tumoral serum markers were within normal limits. She had a history of three surgeries due to endometriosis. On MRI bilateral adnexal masses appear as tortuous elongated cystic structures, corresponding to dilated fallopian tubes adhered to both ovaries, which have lost their normal anatomy. Fluid-fluid level is seen in all the sequences (arrows), with slight high signal intensity on T1WI fat-suppressed (asterisk). Post-contrast T1WI shows the thickened enhancing walls of the dilated fallopian tubes and ovaries. Note the fat stranding around the masses, and a reactive lymphadenopathy (open arrows).
Fig. 11: Left hydrosalpinx and right hematosalpinx in patient with right endometrioma and extraovaric endometriosis. 40 yo woman referred with constant spotting. Right endometrioma appearing as an ovarian cystic lesion, hyperintense on T1WI fat suppressed, showing typical "shading" on T2WI (asterisks). Right fallopian tube slightly dilated with hemorrhagic content (orange arrow). On T1WI are seen several small high signal intensity foci along the anterior and posterior uterine serosa, indicative of endometrial implants (arrowheads). Left hydrosalpinx, containing water-like fluid, secondary to pelvic adhesions, depicted as a tubular structure with plica folds (white arrows) and some synechiae (black arrow).
**Fig. 12:** Endometriosis with left hematosalpinx. 44 yo woman referred to our department to control a known right endometrioma. MRI shows the right endometrioma as a cystic bright mass on T1 fat suppressed, with T2 "shading" (solid arrow). Both adnexa are almost joined together behind the uterus due to extraovaric implant in deep pelvic endometriosis (asterisk). On the left side is seen a tubular structure, with incomplete plica and beak and waist signs, corresponding to the dilated tube with hemorrhagic content, although not as bright as the right endometrioma. Note also the fluid-fluid level.
Fig. 13: Dermoid cyst with hematosalpinx in woman with history of endometriosis. 42 yo woman with history of left ovariectomy due to endometriosis. Is admitted to our institution due to right pelvic pain and palpable mass. MRI reveals a complex right adnexal mass composed by two different lesions. The bigger one is composed predominantly by fat (note the high signal intensity on T1WI, and the signal suppression on T1 fat suppressed) (white arrows), round and heterogeneous, corresponding to a dermoid cyst. The other lesion is seen as a tubular structure, with plica folds and internal synechiae, with fluid content, that is hyperintense on T1WI and T1 fat suppressed, and hypointense on T2WI, concordant with hematosalpinx (black arrows).
**Fig. 14:** Bilateral hematosalpinx in patient with endometriosis. 50 yo woman referred to our department for abdominal pain and tumoral serum marker elevated (CA 125: 240 U/ml). She had menopausia for one year. On MRI both fallopian tubes are dilated (open arrows). On T2WI both tubes show thick and very irregular walls, and the fluid is predominantly hyperintense, but layered with "shading" in the dependent portion on the left one (arrowheads). This content is hyperintense on T1 with fat suppression (white arrow). Note the high signal intensity on the wall on T1WI fat suppression (orange arrow). After contrast administration the walls enhance.
**Fig. 15:** Cont. Figure 14. Right fallopian tube best seen. Note the hyperintense fluid on T1WI FS on the dependent portion (open arrow), and also a bigger focal dilatation in the ampular zone (solid arrow).
Fig. 16: Tubal polyp: intraluminal endometriosis. 28 yo woman asymptomatic. On routine transvaginal sonography is found a cystic left adnexal mass. On MRI the mass has a tubular structure and contains a small soft tissue enhancing nodule attached to the wall (arrows), consistent with hydrosalpinx with an intraluminal polyp. An hysterosalpingography was performed to prove the intraluminal location and the permeability of the tube. After surgical removal hystopathology confirmed the endometriotic nature in spite of lack of other signs of endometriosis.
**Fig. 17:** Primary unilateral fallopian tube carcinoma. 73 yo woman referred with spotting. Tumoral markers were within normal limits. MRI showing lobulated sausage-like solid mass on the right adnexal region (asterisks), that exhibits heterogenous intermediate signal intensity on T2WI. Both ovaries are atrophic. Axial T1WI fat suppressed showing the transverse plane of the mass, that has slightly higher signal intensity than skeletal muscle, and enhances heterogenously on post-contrast imaging (arrows).
**Fig. 18:** Primary bilateral fallopian tube carcinoma. 51 yo woman asymptomatic. Bilateral fallopian tubes dilatation with hyperintense content on T1WI (white arrow), with multiple and bilateral soft tissue enhancing small nodules (open arrows). Both ovaries, and uterus seem normal (not shown). Lymph nodes were no significant. Pathology revealed a bilateral primary serous adenocarcinoma with multiple intraluminal implants and hematic and gelatinous fluid.
Fig. 19: Primary ovarian neoplasm with tubal invasion and secondary hydrosalpinx. 66 yo woman presented with adnexal mass on routine sonographic examination. Serum tumoral markers were elevated (CA 125: 281 U/ml; CA 15.3: 123 U/ml). On MRI is depicted a left adnexal solid enhancing mass corresponding to an ovary neoplasm (papillary serous cystoadenocarcinoma), that extends to the ampullar region of the ipsilateral tube (white arrow), that is secondarily obstructed and very dilated (black arrows). Big lymphadenopathies are also seen (orange arrows).
Fig. 20: Primary ovarian neoplasm with tubal extension and secondary dilatation. 78 yo woman with pelvic palpable mass and elevated serum tumoral markers (CA 125, CA 15.3 and CEA). MRI reveals a large solid and cystic pelvic mass corresponding to a primary ovarian neoplasm (endometrioid adenocarcinoma). Along the anterosuperior margin of the lesion is seen a tubular structure (asterisks), dilated and convoluted, containing a small soft tissue enhancing mass (white arrows), and a fluid hyperintense both on T1 and T2WI, due to extension of the primary ovarian neoplasm to the tube, which is occluded and dilated with hemorrhagic content. Plica folds are also seen within the tube (black arrow).
Fig. 21: Paraovarian cyst. 38 yo woman with abnormal uterine bleeding, referred for cystic adnexal mass, with normal ovaries seen on transvaginal sonography. MRI demonstrates both ovaries are normal, and the presence of a paraovarian lesion, lobular-shape, without plica or septa, not tubular, consistent with paraovarian cyst.
Fig. 22: Lymphangioma. 47 yo woman referred by gynaecologist for left adnexal cystic mass seen on transvaginal routine sonography. MRI depicts a solid mass depending on the posterior wall of the uterus, localized on the left adnexal region, corresponding to a leiomyoma. Anteriorly is seen a multicystic mass, with complete septa, involving the iliac vessels. Sagital and coronal images demonstrates the upper extension. The diagnosis of lymphangioma was suggested due to the big extension, the complete septa within the psedotubular mass, and the involvement of the vessels. The diagnosis was confirmed at surgery.
Fig. 23: Appendiceal mucinous adenocarcinoma. 75 yo woman admitted for pelvic pain. MRI showing a tubular, fluid filled mass, with plica folds, and irregularly thick enhancing walls, localized between the uterus and cecum. It is not clearly seen neither the appendix nor the right ovary. Left ovary is normal (not shown). An complex adnexal mass was suggested. Surgery and pathology demonstrated an appendiceal mucinous adenocarcinoma.
Conclusion

MR imaging is a key imaging technique in the non invasive assessment and diagnosis of tubal diseases.

Personal Information

References


