



PICTORIAL REVIEW / *Gastrointestinal imaging*

Digestive diseases mimicking primary gynecological diseases or with secondary gynecological manifestations



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Abstract A wide range of gastrointestinal diseases may spread to and involve genital organs by different pathways. These pathways result in extension of the pathological process into the extraperitoneal spaces and between the extra- and intraperitoneal spaces. These communications occur either via mesenteries and ligaments or via the posterior parietal peritoneum. Thus, infectious, inflammatory or tumoral digestive diseases can extend into the pelvic organs and present with a misleading clinical picture and/or radiological features, showing the complexity of pelvic diseases in women. This article reviews, illustrates and discusses these different presentations and provides certain clues to help reach a definite diagnosis.

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The origin of most pelvic lesions in women is the genital organs. However, these lesions may also originate from other anatomical entities, in particular, the gastrointestinal tract, which should systematically be investigated in these cases.

Indeed, gastrointestinal tumors or diseases may present as primary gynaecological diseases because of their location or extension to genital organs, their proximity, or via numerous pathways of communication.

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The clinico-radiological picture of gastrointestinal diseases may be misleading: pelvic pain and fever, with or without a mass, a pelvic mass without fever, pelvic ascites, or even vaginal discharge in the case of fistulas. Imaging plays an important role in determining the etiology of these cases. The aim of this article was to discuss and illustrate diseases which should be considered in the presence of the most frequent radioclinical pictures: appendicular abscess, diverticulitis of the rectosigmoid with abscess, or an episode of Crohn's disease should be considered in the presence of pelvic pain and fever, while appendiceal mucocele, GIST or an ovarian tumor may be considered for a non-febrile pelvic mass and pseudomyxoma peritonei or peritoneal tuberculosis in the presence of low volume pelvic ascites and finally rectosigmoid carcinoma, anal canal carcinoma, fistulized diverticulitis or complicated Crohn's disease in the presence of intestinal–genital tract fistula.

Anatomical update

The abdominopelvic cavity includes an intraperitoneal, extraperitoneal and subperitoneal space.

The so-called “intraperitoneal” organs are covered by the visceral peritoneum alone. They are therefore outside the peritoneal cavity itself, which is between the visceral and parietal fascias. The peritoneal reflection is the anatomical junction between these two fasciae. It corresponds to the mesenteries, ligaments and omenta, and called the subperitoneal space, which communicate with the intraperitoneal and retroperitoneal spaces [1].

Organs are either intraperitoneal or primarily retroperitoneal (located behind the posterior parietal peritoneum, such as the kidneys, the ureter, the adrenal glands and the blood vessels), or secondarily retroperitoneal, covered with posterior parietal peritoneum on their anterior side, and attached to the posterior wall by fascia (the duodenum and pancreas are attached by Treitz fascia, the ascending and descending colon with the colic flexure are attached by the right and left Toldt fascia). The only organs located in the peritoneal cavity that are not covered with peritoneum are the ovaries.

Abdominopelvic communications

There are two main pathways.

Extraperitoneal communications (retroperitoneal extraperitoneal pelvis)

The three retroperitoneal spaces meet at the inferior end of the pararenal and lateroconal fascia, which is called the combined interfascial plane [2].

These communicate with the infrarenal space (infraconal region), which extends into the pelvis along the anterolateral walls of the psoas muscle in continuity with the perivesicular retroperitoneal and presacral spaces.

Intra-extraperitoneal communications

These communications are subperitoneal or pass by the posterior parietal peritoneum.

Communication by subperitoneal pathway

Extraperitoneal inflammatory processes are spread by a subperitoneal conduit across the mesentery to the wall of the intraperitoneal digestive tract [3].

This may cause thickening of the gastrointestinal tract walls without mucosal lesions, as for example, in the case of secondary injury to the colic flexure in acute pancreatitis.

On the other hand, inflammatory gastrointestinal processes may also extend to the genital organs: an ovarian abscess, for example, can be a complication of diverticulitis of the sigmoid colon.

The proximity of these anatomical structures explains the classic case of right tubo-ovarian involvement in appendicular diseases, and left tubo-ovarian involvement in sigmoid colon or rectal diseases.

The tumoral process is also spread via the mesentery, with initial parietal involvement along the border of the mesentery colon (mesocolon) or the mesentery of the involved digestive tract.

The broad ligaments are also a common pathway from the extraperitoneal pelvic space (uterus, ascending and descending colon or appendix, in particular) to the intraperitoneal space (ovaries) and vice versa. Indeed, the sigmoid mesocolon communicates with the posterior sigmoid colon or the upper rectum and the round ligaments (part of the broad ligament); the base of the caecum and the inferior and lateral part of the root of mesentery communicates with the broad ligament to the right.

Communication across the posterior parietal peritoneum

Although the posterior parietal peritoneum is an airtight barrier, defects have been described, which explain the communication between the retroperitoneum and the intraperitoneal space [4].

Gastrointestinal diseases with gynaecological manifestations

Pelvic pain with fever (pelviperitonitis) with or without a pelvic mass

Appendicular abscess

Appendicular abscess, in particular when it is at the pelvic tip or when the appendix is in the pelvic position, can present in the form of a right latero-uterine abscess with thick contrast-enhanced walls surrounded by marked inflammatory infiltrate of adjacent fat. The appendix is difficult to visualize and is often enlarged, with a thick wall [5,6] (Fig. 1). The abscess can be difficult to differentiate from a tubo-ovarian abscess, especially since the clinicobiological presentations are similar.

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