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Tubo Ovarian Teratoma MRI Essential Problem

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Description

The combination of ovary and tubal teratoma is exceptionally uncommon, in fact only a handful of cases have been reported in literature. In this case report we would like to not only illustrate a tubo-ovarian mature teratoma in a pre-menopausal woman, but also elucidate our pre-operative diagnostic approach, utilizing ultrasound (US) first and magnetic resonance imaging (MRI) after. In literature, no study on tubal teratoma has concentrated on the diagnostic work-flow to correctly characterize and identify the origin of the neoformation, necessary to reach a comfortable diagnosis prior to surgery. As a matter of fact, tubarian teratomas have been diagnosed either by chance during routinary transvaginal ultrasound (TVUS) examinations, or incidentally during surgical procedures and subsequently confirmed by histopathological analysis. Differently from what previously recounted in other papers on tubal teratoma focusing more on the surgical aspects, this is the first case-report providing detailed MR diagnostic image findings, that could help other doctors whenever encountering such an ambiguous tumor. Our aim was to culminate this gap we dedicated time to comprehensively characterize, classify and identify the origin of the lesion exclusively through diagnostic images, and route the diagnosis to a very probable ovary-tubaric teratoma, thus facilitating the surgical planning.

Ovarian Neoplasms

If on one hand teratomas are frequent tumors originating in the ovaries mature teratomas account for up to 50% of all ovarian neoplasms in women younger than 40 years of age, on the other hand it is rather exceptional to find tubarian teratomas. Actually, to date only 73 cases have been reported in literature. Teratomas are germ cell tumors that form during embryonic development, they can be either mature or immature and the latter are most prevalently cancerous. On the other hand, mature teratomas (mainly dermoid cysts) that are composed of either two or all three germinal layers, have less than 2% probabilities of transforming into malignant tumors. Beyond the subtle symptomatology associated to fallopian tube teratomas, such as infertility, menstrual irregularities, or abdominal pain, in the past no examination has allowed clinicians to either correctly diagnose tubal teratoma preoperatively or at least give a strong direction towards the diagnosis of the specific tumor. In fact, tubarian teratomas have been diagnosed either by chance during routinary pelvic ultrasound or incidentally during surgical procedures and subsequently confirmed by histopathological analysis. Of notice, tubarian teratomas are usually found in the isthmus or ampulla region. Therefore, we hereby would like to fill the gap in literature regarding diagnostic knowledge of tubo-ovarian teratoma, by reporting our approach utilizing ultrasound first and MRI later, in identifying the neoformation prior to histological examination. Differently from what recounted in previous papers, the detailed MR images allowed us to characterize with detail the lesion and identify with high probability the origin. Hopefully, in the future doctors will refer to these images when in doubt. It is important to say that due to the absence of a large body of clinical knowledge, this type of tumor highlights the challenges for clinicians in guiding diagnostic, treatment and management options.

The patient presented to our clinic with acute pelvic pain in the right iliac fossa region. From there, she was advised to do a complete trans-abdominal US that in turn highlighted a large round lesion in that same region. Specifically, we detected a 52 × 42 mm heterogeneous hyperecogenic mass at the level of the small pelvis in front of the bladder, together with free fluid collected around the lesion. Unfortunately, the US was not conclusive in finding the exact origin and type of the tissue characterizing the neoformation. For this reason, with this case report we would like to give weight on a fundamental diagnostic tool, MRI that allowed us to characterize the origin, nature and complications of the neoformation. In literature, no tubal teratoma has been diagnosed pre-operatively, commonly because of its low incidence, elusive symptomatology and its high mutability rate, resulting in frequent evasion. Therefore, this case-report would like to highlight the importance of MRI examination in approaching specifically the correct diagnosis prior to histology confirmation. This would allow clinicians to gain time and help tackle more efficiently the tumor in order to plan the best surgical strategy possible.

Haemorrhagic Infarction

The ovarian parenchyma was not recognizable, the fimbrae were dilated consequently to its obstruction, therefore we assume the neoformation to origin from the tubo-ovarian junction. Furthermore, also the bladder was implicated, as it appeared compressed and dislocated at the bottom by the neoformation described, in addition to the presence of thin fluid layer in the Douglas pouch and in the peri-uterine area. In conclusion, we have exploited MRI as a pre-operative tool for diagnosing the neoformation of right tubo-ovarian relevance, most likely of disembriogenetic nature (dermoid cyst/ teratoma), that was nonetheless confirmed through surgery and histological examination. Long tube tenaciously adherent and partly fused with the ovary of which its dimensions were 75 x 70 x 45 mm. The latter was totally replaced by a cystic formation with thin walls containing greenish mucoid material with hair inside. In correspondence to the adhesion with the tube, there was a wide area of hemorrhage. Furthermore, microscopically we reported a mature tubal-ovarian cystic teratoma, almost totally necrotic, with widespread haemorrhagic infarction and with extensive areas of fibrosis, calcification and chronic granulomatous flogosis containing multinucleated giant cells. In conclusion, the endometrium was atrophic.

Primary fallopian tube carcinoma is the rarest cancer of the female genital tract; only less than 1% of all gynecological malignancies are typically classified as primary fallopian tube carcinomas of which the most frequent are adenocarcinomas. Benign tumors of the fallopian tube are even less common, the majority being adenomatoid tumors, however when considering ovarian teratomas it is important to

highlight their predominance within benign ovarian tumors. Ovary-fallopian tube teratomas most commonly pass unnoticed, it is rare to point out their presence after targeted diagnostic examinations, mainly because these tumors do not give away signs of their existence. A precocious sign of fallopian tube obstruction is infertility whereas tubal torsion usually appears over time. Notably, more than two-thirds of women diagnosed with tubal teratoma are infertile. The methods used for the detection of this neoplasm include ultrasonography, hysterosalpingography, CT scan, MRI and laparoscopy. However, tubal teratomas are usually not preoperatively diagnosed also due to the limited literature illustrating diagnostic information, such as detailed images with descriptions, useful for guidance. Actually, to date no author has prompted their research content on the preoperative diagnosis approach of a tubarian teratoma, in fact all cases have been identified incidentally during routinary US gynecological examinations or surgical procedures. It is of uttermost importance to integrate a third level diagnostic examination such as MRI to examine any suspicious lesion at US, in order to characterize and deepen the information necessary to identify the correct origin before entering the operating theatre. In this way we allowed surgeons to plan the removal more efficiently in terms of time and technical planning.