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Case report

Giant nabothian cysts: A rare incidental diagnosis on MRI ☆☆☆

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ABSTRACT

This case report follows a 52-year-old female patient undergoing routine screening for hepatocellular carcinoma. Incidentally, the patient was found to have a cystic pelvic mass on initial imaging via CT. Subsequent imaging with MR confirmed findings of two giant nabothian cysts. This case outlines the rare, asymptomatic nature of giant nabothian cysts and emphasizes the efficacy of MR as a tool for diagnosis of pelvic masses when ultrasound and CT findings are equivocal.

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Introduction

Nabothian cysts are benign cervical cysts that are frequently seen in women of reproductive age. They are typically small and do not present with clinical symptoms. The cysts frequently resolve on their own with no need for medical intervention. Very rarely, they can grow into large cysts that may cause compression of surrounding viscera and produce symptoms related to mass effect. The following case reports the findings of giant nabothian cysts in an asymptomatic patient undergoing routine screening for hepatocellular carcinoma.

Case report

A 52-year-old female patient with a past medical history of Hepatitis C cirrhosis underwent an abdominal ultrasound for routine screening of hepatocellular carcinoma. Grayscale and color Doppler imaging of the right upper abdomen were performed (not shown). Cirrhotic hepatic morphology and a 1 cm hyperechoic focus was seen in the left hepatic lobe. The follow up (Computed Tomography) CT of the abdomen and pelvis was acquired with and without contrast (liver tumor protocol). The previously seen ultrasound abnormality was confirmed as a hemangioma (not shown). Additionally, there was an incidental finding of pelvic cystic tumor (Fig. 1) with internal fluid attenuation and MRI was recommended for further evaluation.

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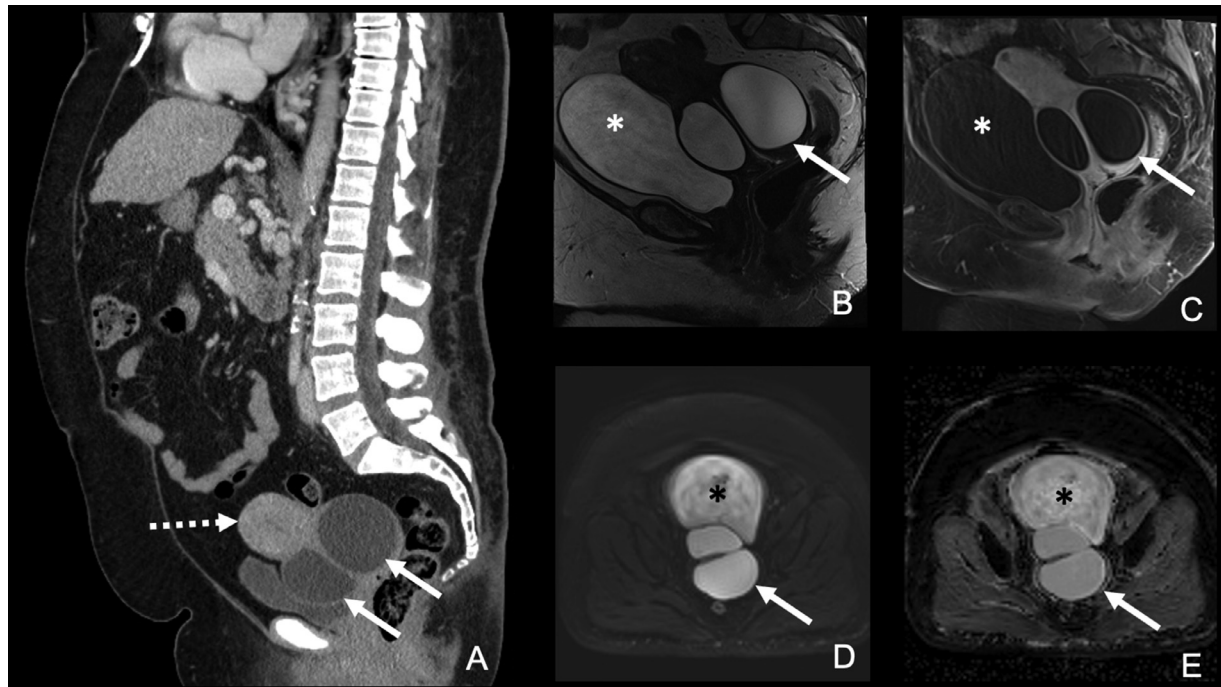


Fig. 1 – A panel of multiple images from patient's CT and MRI. The sagittal reconstruction from CT of the abdomen and pelvis acquired after IV contrast (A) shows large hypodense foci in the cervix (white solid arrows) with fluid attenuation (5 HU). The fundus of the uterus is normal (broken white arrow). The MRI of the pelvis shows high signal intensity on T2 weighted image (B), similar to the urinary bladder (asterisk on all MR images). The two foci are separated clearly by a linear T2 hyperintense focus, the cervical canal. No internal complexity, septations or mural nodular enhancement are seen (C) shows sagittal T1 fat saturated image, post IV contrast). T2 shine through is seen as high signal on DWI and ADC images (D&E respectively).

Multipolar and multisequence MR imaging of the pelvis were acquired performed with and without IV contrast. A cystic focus (T1 hypointense and T2 hyperintense) measuring 5.3×3.4 cm is seen in the anterior cervix, and a similar cystic focus measuring 6.3×4.5 cm is seen in the posterior cervix (Fig. 1). They both show thin walls with no complexity, internal septation or enhancement. High signal is seen on Diffusion Weighted Image (DWI) and Apparent Diffusion Coefficient (ADC) images (consistent with T2 shine through or facilitated diffusion). These findings are consistent with the diagnosis of giant nabothian cysts. No findings were seen to support presence of infection or tumor.

Discussion

Nabothian cysts are the most common, benign mass lesion of the cervix. They are simple mucous retention cysts that can be seen in women of reproductive age [1]. They form from inflammatory and reparative processes involving the transition zone of the cervix. Formation of nabothian cysts involves proliferation of the squamous epithelium of the ectocervix over the columnar epithelium of the endocervix. Mucoïd material continuously secreted from glands of the endocervix can become trapped under the squamous proliferation and form retention cysts [2,3]. Nabothian cysts are commonly found in the sub-

mucosal layer of the cervix and are typically a few millimeters in diameter [2–4]. Grossly, nabothian cysts will appear as firm bumps on the cervical surface [2–3]. In contrast to other cystic cervical lesions, nabothian cysts are typically very small (few millimeters in size), resolve on their own, and do not cause symptoms of clinical significance.

It is rare for a nabothian cyst to reach a size greater than 4 cm [4,5]. Large nabothian cysts may appear as a malignant tumor and cause various symptoms relating to mass effect. The patient may experience symptoms of abdominal pain and pelvic congestion [4]. They may also experience vaginal bleeding and painful intercourse [3]. The mass may also compress the rectum and cause abnormal defecation or tenesmus [4]. Some cysts may cause significant watery discharge and discomfort [1,3]. Cases have been reported of large nabothian cysts causing obstruction to labor passage or cervical prolapse [5–7].

Nabothian cysts typically do not require medical therapy due to their benign nature. However, in cases such as those mentioned above, the cysts should be treated to manage patient symptoms. Furthermore, cysts should also be treated if the diagnosis is unclear and malignancy cannot be ruled out. For example, a rare pathological process known as adenoma malignum shares very similar characteristics of large nabothian cysts but has an aggressive pathological process [5]. In such cases, treatment options include cryocautery, electro-

cautery, or complete excision in order to evaluate histopathology [3].

Nabothian cysts are common, and can be asymptomatic in nature. Reports suggest that many nabothian cysts are found incidentally during pelvic examinations or ultrasound, have been indicated on up to 12% of routine pelvic MRI scans, and have been reported in 20% of hysterectomy specimen [1–3]. In our patient, nabothian cysts were found incidentally on MRI. Initially, the patient underwent ultrasound evaluation for screening of hepatocellular carcinoma. Findings on the ultrasound were followed up by CT, followed by subsequent MR imaging of the pelvis, which identified two giant nabothian cysts in the anterior and posterior wall of the cervix.

There are many diagnoses that can result in cystic masses seen in the cervix. Differential diagnoses related to such image findings include endometriomas, leiomyomas, papillomas, adenoma malignum, and nabothian cysts [5]. Many of these masses will coincide with symptoms such as abdominal discomfort, bleeding, or protruding mass [4]. It is important to evaluate these lesions when there are clinical symptoms present or if there is high suspicion of malignancy.

On imaging, nabothian cysts appear as cystic accumulation within the cervical stroma with round and regular boundaries [8,9]. They present with posterior acoustic enhancement on ultrasound [8,9]. Doppler imaging shows no intralesional vascularity [10]. On MR, uncomplicated nabothian cysts have an imaging appearance of simple cyst with low signal on T1 weighted images and high signal on T2 weighted images [11]. Typically they have a smooth wall, and there is no wall enhancement with intravenous gadolinium [11]. When infected, thick capsular enhancement, high internal T1 signal (proteinaceous material) and surrounding inflammation (hyperemia) may be seen. MRI is able to distinguish mucin producing carcinomas from nabothian cysts due to difference in signal intensity in the cervical stroma on T2-weighted imaging [4]. Moreover, benign lesions do not show wall enhancement with intravenous gadolinium [11]. Thus, a small size and distinct boundaries without enhancement are characteristic findings of nabothian cysts on MR [8,10,11]. On CT nabothian cysts have fluid attenuation (0–20 HU) and their differentiation from other regional cystic lesions (such as Gartner's duct cyst, adnexal cystic lesions, or cystic neoplasms), even on a contrast enhanced study, may be challenging. MR may be used to further evaluate these indeterminate findings. Transabdominal or endovaginal ultrasound are first line imaging choices for visualization of female pelvic structures [1,12]. CT is not considered a first line imaging choice because it does not provide sufficient soft tissue contrast and exposes patients to ionizing radiation [1,12]. On the other hand, MR allows for better visualization of anatomy and cervical lesions due to its superior soft tissue contrast [1]. Thus, when ultrasound findings or CT findings are indeterminate, MR is a useful imaging modality to identify pelvic abnormalities in a patient without exposing them to ionizing radiation [1,12].

This case report reflects the necessity of using multiple imaging modalities in order to correctly diagnose the incidental findings in our patient. It is surprising that such

large cysts did not manifest with clinical symptoms in this patient. Perhaps, if the cysts continue to grow, the patient may develop symptoms related to compression, obstruction, and vaginal discharge in the future. The patient will continue to be monitored for future developments and necessary intervention.

Authors' contributions

The authors declare that this is their original work and they all approve the content of this manuscript. They confirm that this manuscript has not been published previously, in any language, in whole or in part, and is not currently under consideration elsewhere.

Ethical clearance

This project did not involve any research and no ethical clearance was required.

Patient consent

A written informed consent was obtained from the patient for the publication of this case report.

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