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Case report

High-grade cervical dysplasia in a woman with uterine didelphys: A case report

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ABSTRACT

The combination of lower genital tract carcinomas with genitourinary malformations is a rare occurrence. The purpose of this report is to describe the case of high-grade cervical dysplasia of the left cervix of a woman with a uterine didelphys and additional urinary tract malformations.

1. Introduction

Genital and urinary tract developmental anomalies often appear simultaneously owing to the common embryologic origin of these organ systems. Approximately 20% of women with genital tract malformations also have urinary tract anomalies (Heinonen, 2016; Schöller et al., 2018; Rodriguez, 2014). While carcinomas of the lower genital tract and genitourinary malformations both occur, their coexistence is rare (Valdespino et al., 2018; Gong et al., 2022; Zong et al., 2019). These rare clinical cases are complicated and often require a multidisciplinary approach to determine a diagnosis and develop a treatment plan. Complicated gynecologic oncology cases in Belarus are often presented to a multidisciplinary team of experts from the United States and Israel through the International Gynecologic Cancer Society (IGCS) Project ECHO (Extension for Community Healthcare Outcomes) virtual tumor board which occurs monthly (Matylevich et al., 2021).

2. Case presentation

A 46 year old nulligravid female was referred to the NN Alexandrov National Cancer Centre in Minsk, Belarus. She had a known history of a uterine didelphys and bilateral polycystic kidney disease with end-stage renal failure requiring hemodialysis. The patient had a routine cytology test of the left cervix which showed atypical squamous cells of undetermined significance (ASCUS). Cytology of the right cervix was negative. Reflex high-risk human papillomavirus (HPV) testing of the left cervix was positive for HPV types 16, 18, 52, 33 and 58.

2.1. Evaluation

The patient was dispositioned to colposcopy of both cervices. During the speculum exam, a longitudinal vaginal septum was absent but two separate cervical os/canals were noted (Fig. 1). On colposcopy, no cervical lesions were noted. Random cervical biopsies and an endocervical curettage (ECC) were performed of both cervices. The biopsy and ECC of the left cervix revealed high grade squamous cervical intraepithelial neoplasia (CIN), cannot rule out invasive cancer (Fig. 2a). Both the cervical biopsies and ECC of the right cervix were negative.

Pelvic imaging included magnetic resonance imaging (MRI) which demonstrated two separate uteri with widely divergent apices, two separate cervices, but no vaginal septum (Fig. 3a and 3b). Normal uterine zonal anatomy was preserved in both uteri. According to the 2021 American Society for Reproductive Medicine Müllerian Anomalies classification, the diagnosis of uterus didelphys was established (Gaillard and Jones; Pfeifer et al., 2021). This is a class III Müllerian duct anomaly with complete duplication of the uterine horns and cervices, without communication between them. Computed tomography (CT) scan confirmed polycystic kidney disease and no evidence of metastatic

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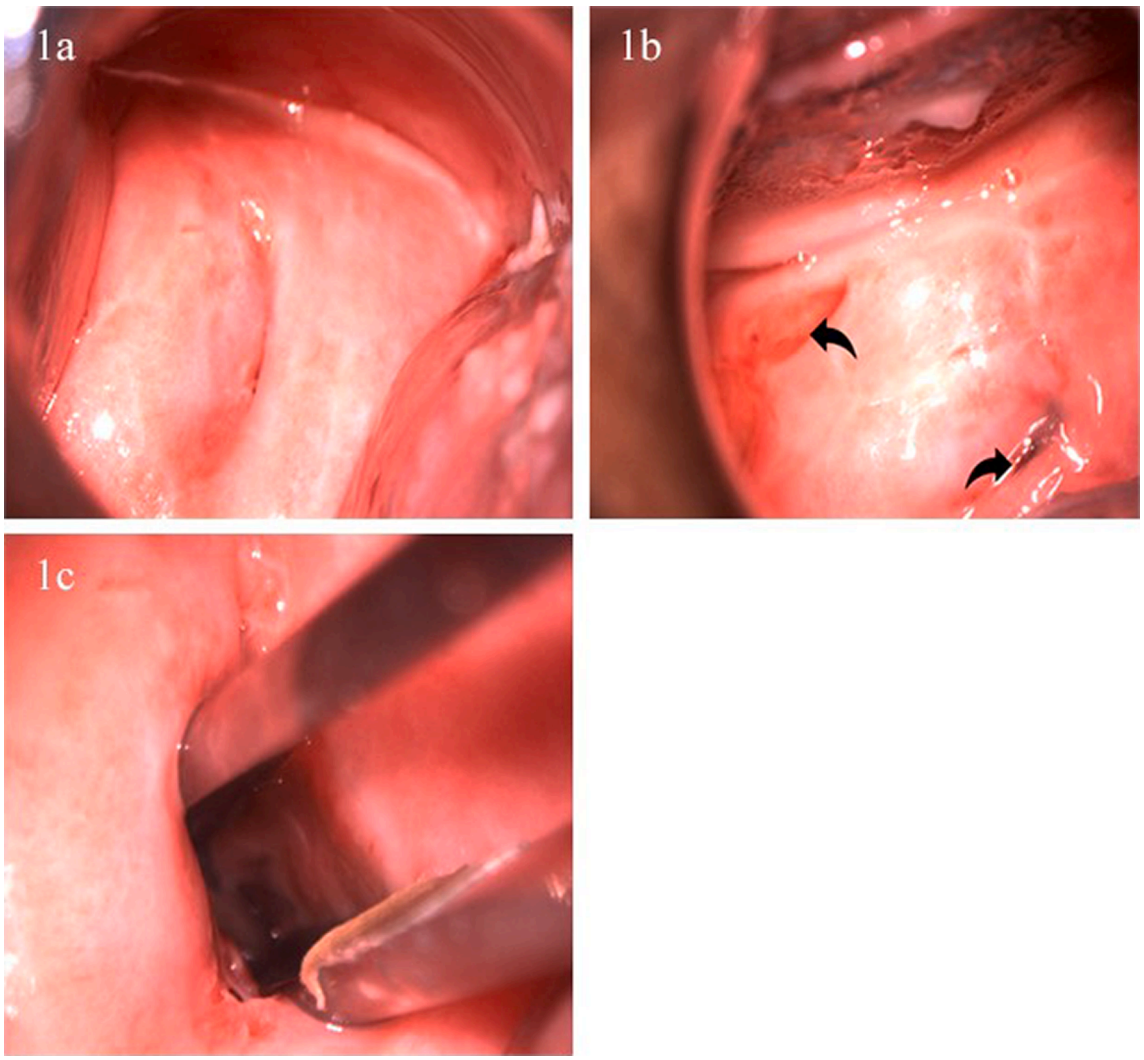

Fig. 1. (a) general view of the cervix; (b) left and right cervical os/canals; (c) left cervical canal.

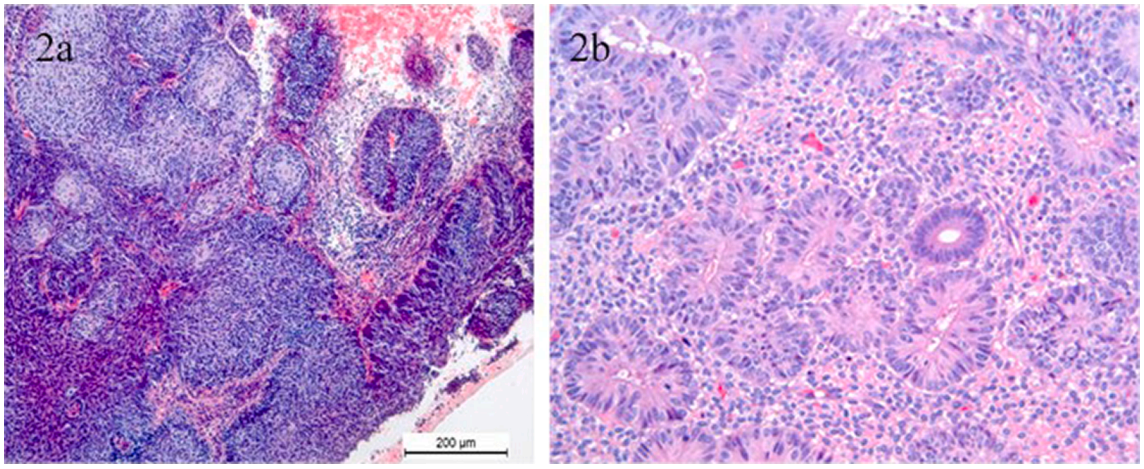

Fig. 2. (a) pathological image of hematoxylin and eosin stained (×10) sample revealing HSIL with involvement of cervical glands and focus of microinvasion; (b) pathological image of hematoxylin and eosin stained (×20) sample revealing atypical endometrial hyperplasia.

disease.

The case was presented to the IGCS Belarus Project ECHO monthly tumor board with experts from the United States and Israel present. The group recommended a loop electrosurgical excision procedure (LEEP) of the left cervix. Final pathology results showed rare foci of high grade cervical intraepithelial lesion/cervical intraepthelial neoplasia, grade 3 (HSIL/CIN 3) with no evidence of invasive squamous cell carcinoma. The margins were negative. The patient was dispositioned to

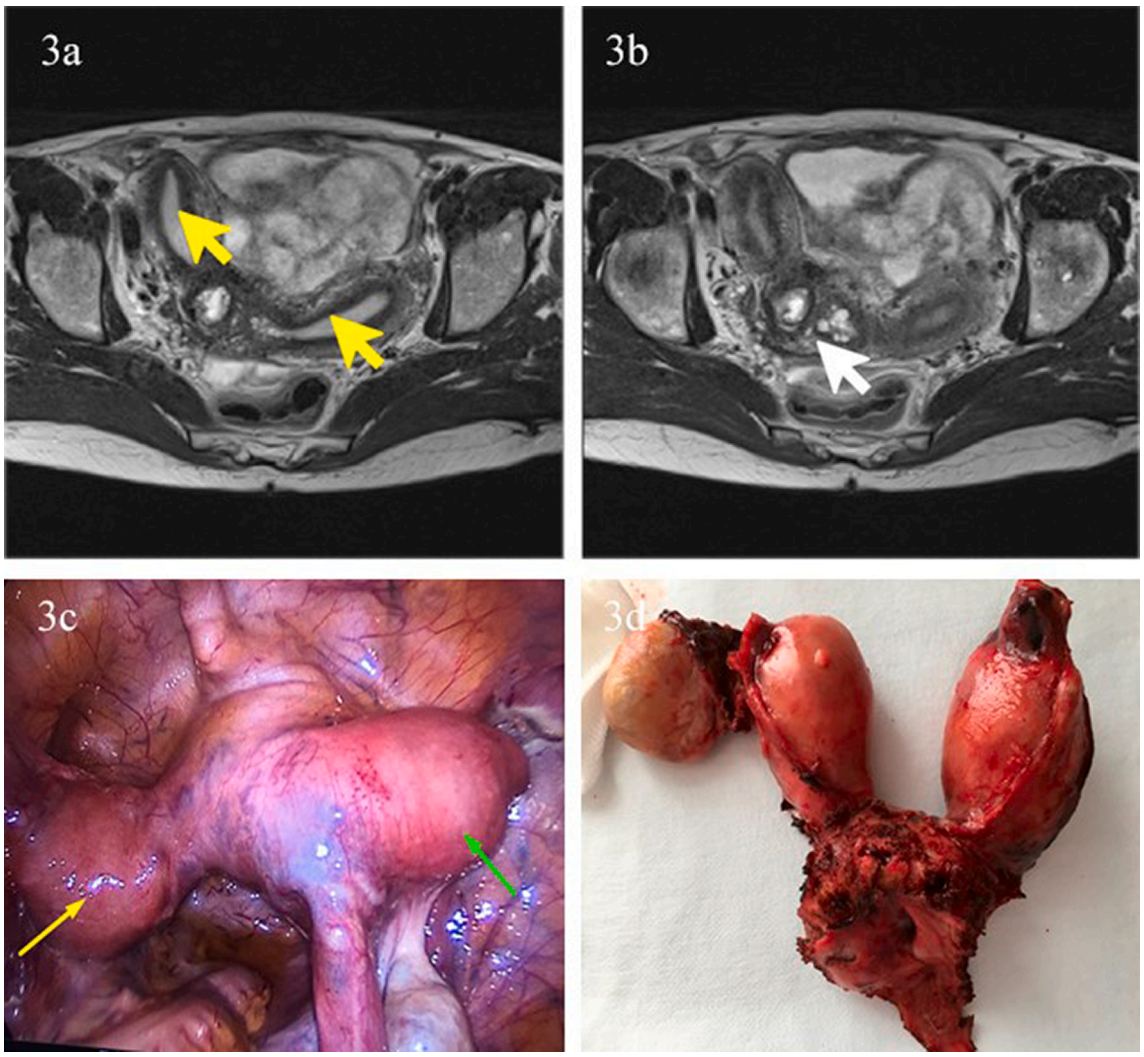

Fig. 3. (a) MRI of the pelvis showing a complete duplication of the uterus with two widely separated uterine corpora (yellow arrows); (b) both cervices show retention cysts (white arrow) but no evidence of parametrial involvement or lymphadenopathy; (c) laparoscopic view of both uteri; and (d) resected specimen. (For interpretation of the references to colour in this figure legend, the reader is referred to the web version of this article.)

observation by the IGCS Project ECHO tumor board.

2.2. Observation and follow-up treatment

Six months after the LEEP, the patient returned for a follow-up examination and reported intermittent intermenstrual vaginal bleeding. Cytology of the left cervix showed HSIL with positive high-risk HPV testing from both cervices. Ultrasound examination revealed a thickened endometrium in both uteri concerning for endometrial hyperplasia/cancer. ECC and endometrial biopsy were recommended but were unsuccessful due to the distorted cervical anatomy after the LEEP. There was not enough remaining cervix to perform a repeat LEEP. The case was again presented to the IGCS Project ECHO tumor board and the recommendation was for a simple hysterectomy, which was performed via a laparoscopic approach (Fig. 3c and 3d). Final pathology showed atypical hyperplasia of the endometrium in the left uterus (Fig. 2b), disordered proliferation of the endometrium (right uterus), adnexal endometriosis, and low-grade squamous intraepithelial lesion (LSIL) of the cervix. After surgery she was discharged without any complications. Her case was agin presented to the IGCS Belarus Project ECHO Tumor Board and onbservation was recommended.

3. Discussion

Didelphys uteri account for approximately 8% (range 5–11%) of Müllerian duct anomalies (Pfeifer et al., 2021). Patients with Müllerian duct anomalies often also have renal tract anomalies, due to the close embryologic relation between the development of the urinary and reproductive organs (Gaillard and Jones; Pfeifer et al., 2021; Heinonen, 2018; Goyal et al., 2020; Makroum et al., 2020). Using MRI and CT imaging, Müllerian duct class III anomaly (uterus didelphys) in combination with urologic malformation (bilateral polycystic kidney disease) was confirmed in our patient.

Given the complexity of this case, it was presented at the Project ECHO Tumor Board. The Project ECHO Tumor Boards were launched by the IGCS in 2017 as part of a Global Curriculum and Mentorship Program supported by MD Anderson Cancer Center in Texas, USA. Then the Project ECHO tumor boards were expanded and the first session was held in 2017 with the Belarusian Cancer Society, a member of the Strategic Alliance, and since then has been held regularly once a month with the participation of an international multidisciplinary team (Matylevich et al., 2021).

Taking into account the severe concomitant urological anomaly, the Project ECHO Tumor Board recommended conservative management with the least amount of intervention, and a LEEP was therefore

performed. However, she went on to have persistent cytologic abnormalites and advice was again sought from the Belarus IGCS Project ECHO Tumor Board and hysterectomy ultimately performed. Although the role of high-risk HPV in carcinogenesis in women with congenital malformations of the genitourinary system is still unknown (Zong et al., 2019), careful monitoring of such patients, especially those with some degree of immunodeficiency, is necessary, who are likely to be at risk of chronic HPV infection and, therefore, dysplasia of the vagina, vulva, and possibly anus.

4. Conclusions

Simultaneous malformations of the genital and urinary tracts result in difiiculties in the screening and diagnosis of cervical and endometrial abnormalities including precancerous and cancerous lesions. The IGCS Project ECHO Tumor Board in Belarus allows gynecologic oncologists to receive best practice guidance from world leading specialists and provide up to date managements of difficult and unusual clinical cases such as the one presented.

5. Consent

Informed consent was obtained from the patient described herein.

CRediT authorship contribution statement

Olga P. Matylevich: Conceptualization, Methodology, Writing – original draft. **Kathleen M. Schmeler:** Conceptualization, Methodology, Supervision, Writing – review & editing. **Ofer Gemer:** Methodology, Supervision. **Vitali S. Petukhou:** Visualization, Writing – review & editing. **Pavel A. Kopschaj:** Visualization, Writing – review & editing.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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