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SHORT COMMENTARY

Exaggerated Placental Site as a Cause of Hysterectomy for Massive Bleeding After First Trimester Voluntary Abortion

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Abstract

Objectives Placental implantation anomalies in first-trimester abortions may determine severe bleeding leading to hysterectomy. There are very few cases of urgent hysterectomy post-abortion reported in the literature, related to placenta accreta spectrum, but in any of them is considered association with benign trophoblastic lesions.

Methods We report the case of a woman, who underwent surgical voluntary abortion by vacuum aspiration during first trimester, without any apparent surgical complications. Immediately, after this procedure, the patient had massive vaginal bleeding; an emergency hysterectomy was performed. Histological examination showed an exaggerated placental site (EPS).

Results Morphological findings describe a trophoblastic tumor-like lesion, which differs from placenta accreta and often considered an asymptomatic occasional feature. Proliferative index, evaluated by double immunostain for CK8-18 and Ki-67, was unremarkable (<1%).

Conclusions Only a single report in the literature describes a case of symptomatic EPS 65 after first-trimester abortion. Major attention should be paid to trophoblastic pathology in order to understand a possible relationship with uterine bleeding and to find a clinical, ultrasound or chemical indicator.

Keywords Exaggerated placental site · Hysterectomy · Voluntary abortion · Massive bleeding

Dear Editor

First trimester voluntary abortion is usually a safe procedure, either by medical or surgical treatment.

Major complications are extremely rare, including significant bleeding, uterine perforation, pelvic infection and repeated curettage. There are very few cases of urgent hysterectomy post-abortion reported in the literature, related to placenta accreta spectrum, but in any of them is considered association with benign trophoblastic lesions. We report the case of a woman, without gynecological or anesthesiological risk factors, who underwent to surgical voluntary abortion by vacuum aspiration during first trimester, without any apparent surgical complications. Immediately, after this procedure the patient had massive vaginal bleeding; as a result of unsuccessful conservative treatment, an emergency hysterectomy was performed.

Histological examination of the uterus showed an exaggerated placental site (EPS), a rare cause of massive bleeding after abortive procedure.

Surgical abortion by vacuum aspiration can be safely performed up to 14 weeks of gestation; the rate of complete abortion after surgery is over 97% [1] and complications rates are not significantly related to the expertise of the operator. Major complications requiring intervention, including hemorrhage due to uterine perforation needing repair and transfusion, occurs in ≤0.1% of procedures. Beyond surgical causes of bleeding, histological findings should be considered as a possible explanation of the hemorrhagic complication: in fact placental implantation anomalies in first trimester abortions

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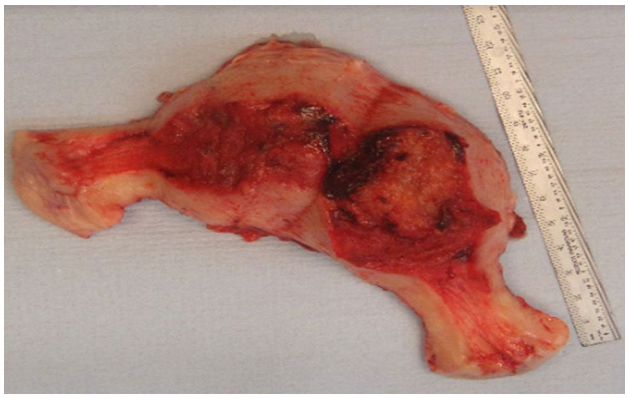

Fig. 1 EPS Uterine specimen: posterior wall whitish protruding area and some blood clots

may determine severe bleeding leading hysterectomy. In our case, morphological findings describe a trophoblastic tumor like lesion, which differs from placenta accreta and often considered an asymptomatic occasional feature.

A 39-year-old Caucasian woman, smoker, para 2/0/1/2 (a first trimester voluntary abortion and two vaginal births) came to our attention at ninth week of gestation asking for voluntary interruption and subsequent placement of an intrauterine contraceptive device (IUD).

Her past medical history included only hypothyroidism under treatment and a non significant gynecological history. Ultrasound documented normal gestational sac containing a single embryo, corresponding to amenorrhea, no vaginal bleeding during this pregnancy, no anesthesiological risk factors were reported.

An elective-day surgery aspiration, according to the Italian law, and the hospital protocols was planned.

The patient underwent apparently uncomplicated vacuum aspiration and a regular uterine cavity resulted at the ultrasound evaluation, subsequently an unexpected profuse uterine bleeding occurred before the placement of the IUD.

A second aspiration was performed with no success, then 800 mg of endorectal misoprostol was administered and intrauterine Foley catheter filled with 70 cc was positioned, but no hemostasis was obtained: as bleeding was unstoppable and persisted (1000 cc within 20 min), emergency hysterectomy was decided and easily performed.

Gross examination of uterine specimen showed a fundic-posterior protruding whitish area measuring approximately 2.5 cm with peripheral hemorrhagic infarction (Fig. 1).

Histologically, myometrium of the uterine corpus was characterized by pregnancy changes and diffuse hemorrhagic foci. An anomalous placental implantation site was observed at the protruding posterior area level, showing implantation site with scarce residual chorionic villi (Fig. 2a) with regular morphologic features. Implantation site extensively infiltrated endometrial mucosa and myometrium (width over 5 mm) and it was characterized by cords, nests or single

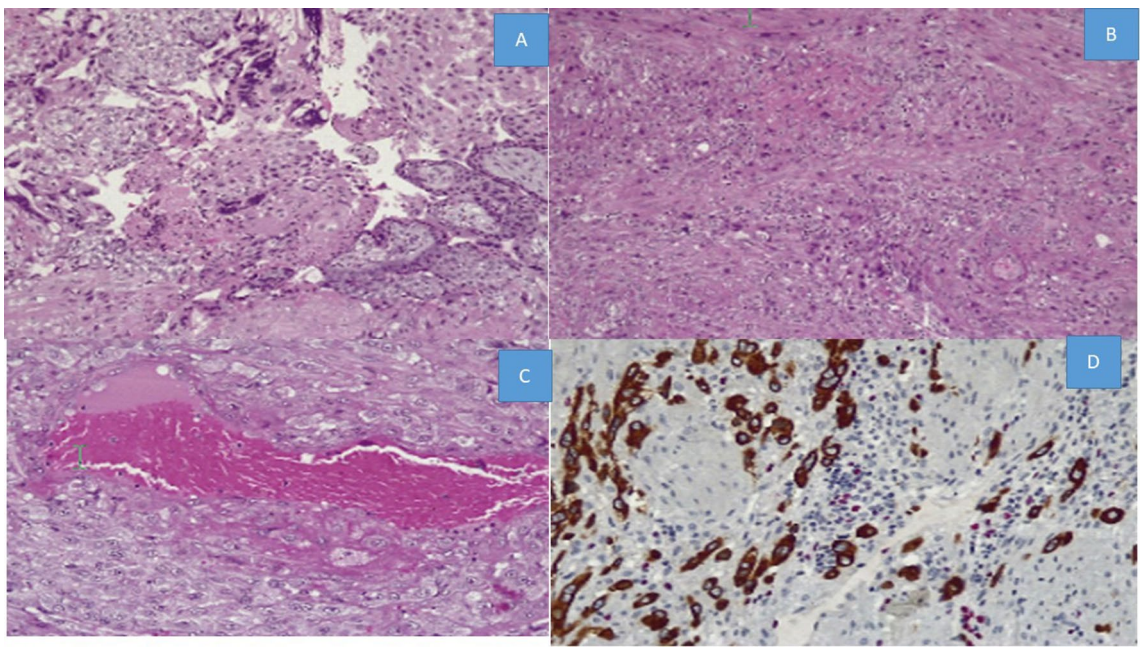

Fig. 2 **a** Implantation site: some residual chorionic villi (E-E X200); **b** myometrial colonization by intermediate trophoblastic cells (E-E X200); **c** intermediate trophoblastic cells arranged around a vessel (E-E X400); **d** trophoblastic cells with strong CK8-18 cytoplasmatic immunostain (brown) in the absence of nuclear Ki-67 (red). Ki-67 immunoreactivity is observed in some lymphocytes (positive internal control) DAB-RED X400

intermediate trophoblastic cells (Fig. 2b), many of which were multinucleated, sometimes arranged around and in the wall of spiral arteries (Fig. 2c).

No necrosis was seen. Mitotic activity was absent. (Fig. 2d) Proliferative index, evaluated by double immunostain for CK8-18 and Ki-67, was unremarkable (< 1%). These features are consistent with a well-known benign trophoblastic lesion, so-called "exaggerated placental implantation site reaction."

Postsurgical abortion major complications (such as intense bleeding, uterine perforation, infections and need for re-intervention) are very unusual. Massive bleeding requiring emergency hysterectomy is an extremely rare event and few data are available in the literature. Among causes, we must consider coagulopathies, uterine atony, iatrogenic lesions, undiagnosed scar pregnancies and finally trophoblastic lesions.

In particular, EPS is a term used to designate a more exuberant form of the implantation site. Its incidence is < 2% in spontaneous and induced abortion from first trimester [2]. EPS has been diagnosed in some cases of severe uterine bleeding which led to hysterectomy at the term of pregnancy [3, 4] and is considered a risk factor for postpartum atony.

It is characterized by an extensive infiltration of endometrium and myometrium by implantation site intermediate trophoblastic cells. Even spiral arteries might be completely surrounded by trophoblastic cells, but there is no necrosis; overall structure of placental site is conserved, mitotic activity is absent and proliferative index (evaluated by Ki-67) < 1%. EPS must be differentiated from placental site trophoblastic tumor (PSTT). These findings in combination with lack of a tumor mass and moreover the presence of chorionic villi are helpful for this differential diagnosis.

In conclusion, according to the literature, only a single report in the literature describes a case of symptomatic EPS after first trimester abortion [5]. We describe herein an additional case, emphasizing the possible role of EPS in post-abortion procedures massive bleeding. Because of few available data, it is difficult to delve into the topic, but more attention should be paid to trophoblastic pathology in order to understand a possible relationship with uterine bleeding and to find a clinical, ultrasound or chemical indicator.

Finally, to prevent this complication, aspiration should always be executed in an adequate structure, despite it is considered a very low risk procedure.

Compliance with ethical standards

Conflicts of interest The authors declare that they have no conflicts of interest.

Ethical Approval All procedures performed in this study were in accordance with ethical standard of institutional and national research committed and Helsinki declaration and its later amendments.

Informed Consent Informed consent was obtained by the patient.

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