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Case report

Giant uterus in a patient with Klippel-Trenaunay syndrome. Report of a case

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ABSTRACT

Introduction: Klippel-Trenaunay syndrome is an uncommon congenital disease also called angio-osteodystrophy syndrome for its typical disorders characterized by abnormal growth of the soft tissues and bones and vascular malformations.

Case report: In this report, we present a rare case of a 46-year-old nulliparous woman with Klippel-Trenaunay syndrome. She suffered from an abnormal uterine bleeding accompanied by severe anemia with need for multiple blood transfusions. At the time of admission, physical examination revealed port-wine stains and varicose veins on her lower limbs and hypertrophy of left lower extremity. We carried out an open bilateral hysteroannexectomy. Histopathology examination revealed a uterus weighing 6300 g with diffuse abnormal vasculature, leiomyomatosis and diffuse venous malformation.

Discussion: Klippel-Trenaunay syndrome is considered a rare disease as it has an incidence of 2–5 on 100,000 with no differences between the both sexes. The clinical manifestations are related to the organs involved in the pathological angiogenesis therefore patients may also present cerebral, retinal, gastrointestinal and genitourinary anomalies with consequent occult or significant bleeding. Uterine involvement is very rare. The main clinical manifestations are represented by irregular episodes of hematuria and/or menometrorrhagia associated with important anatomical anomalies of the female reproductive system.

Conclusion: Uterine involvement in patients with Klippel-Trenaunay syndrome, althought rare and with extremely variable clinical manifestations, is actually a relevant event that not only significantly affects the reproductive capacity of the woman but which potentially puts patients' lives at risk because of an unpredictable bleeding.

1. Introduction

Klippel-Trenaunay syndrome (KTS) is an uncommon congenital disease also called angio-osteodystrophy syndrome for its typical disorders characterized by abnormal growth of the soft tissues and bones and vascular malformations. These growth anomalies manifest themselves clinically in different ways with the appearance of the pathognomonic port-wine stains which more frequently involve the lower limbs. Even if with less frequency, the upper limbs and the trunk can also present the same lesions. On the contrary, visceral involvement is very rare, with particular regard to the gastrointestinal system, liver, spleen, mediastinum and genitourinary system. Pathological localization of the KTS at the genital level in women is further rare [1,2]. In this report we present a rare case of a female patient with KTS underwent to total hysterectomy for abnormal uterine bleeding and severe anemia, in line with the SCARE criteria [3,4].

2. Presentation of case

A 46-year-old nulliparous woman with KTS came to our observation at the Department of General Surgery of the University Hospital. She suffered from an abnormal uterine bleeding accompanied by severe anemia with need for multiple blood transfusions. At the time of admission, physical examination revealed port-wine stains and varicose veins on her lower limbs and hypertrophy of left lower extremity. Physical examination of the abdomen highlighted the presence of a giant abdominal mass extending from the costal margin to the pelvis. There was also present macrocephaly with facial asymmetry and psychomotor

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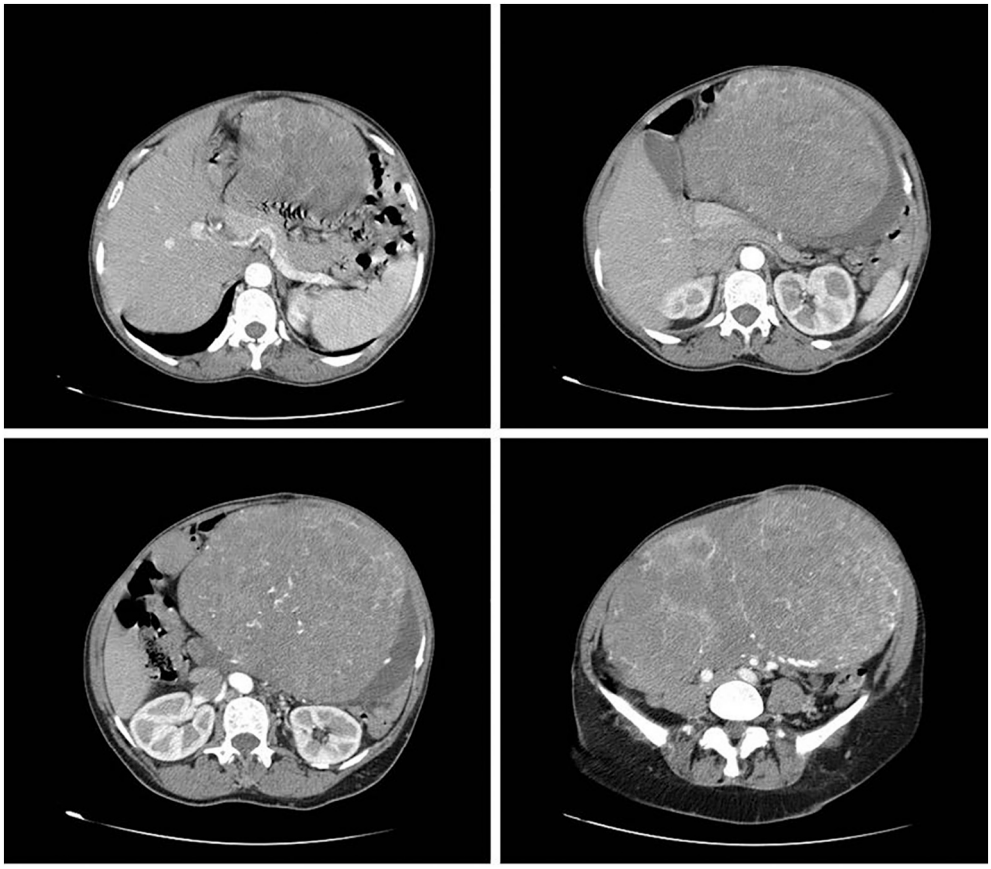

Fig. 1. Contrast-enhanced computed CT abdominal scan revealed an enlarged uterus measuring 25 cm × 27 cm × 17 cm.

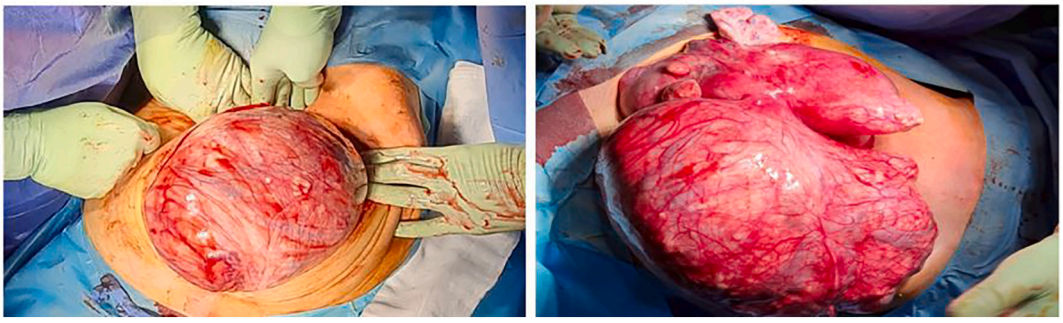

Fig. 2. Intraoperative images demonstrate a voluminous hypervascular uterus with diffuse venous malformation.

retardation. A preoperative ultrasonography and contrast-enhanced CT abdominal scan identified a voluminous uterus measuring 25 cm × 27 cm × 17 cm that occupied the entire abdominal cavity with dislocation of contiguous viscera [5] (Fig. 1). The uterus also showed increased vascularization. The laboratory examination evidenced a microcytic hypochromic anemia (Hb 7.5 g/dL; MCV 57.5 fL; MCH 17.6 pg); CA 15–3 31 U/mL; Alpha-fetoprotein 1.04 μg/L; CA 125 8.3 U/mL; CA 19–9 2.67 U/mL; CEA 1.31 μg/L. Other routine laboratory tests were in the normal range. The patient had no other systemic symptoms or comorbidity. During the hospital stay in the preoperative period because of repeated episodes of meno-metrorrhagia the patient received two blood transfusions. Despite our experience in laparoscopic and gynecological surgery [6–10] also for large masses [11,12], and the role of a fertility sparing approach [13,14], considering the voluminous size of the uterus in this case a laparoscopic approach was not indicated. We carried out an open bilateral hysteroannexectomy (Fig. 2). The surgical procedure was performed by a surgeon experienced in general and gynecological surgery. In order to avoid ureteral injuries [15] a selective cannulation of both ureters were cystoscopically performed by urologists after induction of general anesthesia and the stents were removed on the first postoperative day. Histopathology examination revealed a uterus weighing 6300 g with diffuse abnormal vasculature, leiomyomatosis and diffuse venous malformation. The patient was satisfied with the treatment received with rapid postoperative recovery and no complication and was discharged on POD 3.

3. Discussion

KTS is considered a rare disease as it has an incidence of 2–5 on 100,000 with no differences between the both sexes. The disease manifests very early within the first year of life and the diagnosis is based on the classic triad first described in France in 1900 and characterized by

angiomatous lesions (port-wine stains), bone and soft tissue hypertrophy with typical appearance syndromic of patients [16]. The cause of the disease is currently unknown although some authors have proposed a specific mutation of the PIK3CA gene responsible for cell proliferation and migration with abnormal growth of soft tissues and bone typical of the disease [17]. According to other authors, on the other hand, KTS is based on an overexpression of specific factors of angiogenesis (VG5Q) [18]. The clinical manifestations are related to the organs involved in the pathological angiogenesis therefore patients may also present cerebral (micro-macrocephaly with significant cognitive impairment), retinal, gastrointestinal and genitourinary anomalies with consequent occult or significant bleeding. A recent review by our group [19] evaluated uterine involvement in patients with KTS. It was found that this is a very rare involvement as only 11 articles have been described in the literature. The main clinical manifestations were represented by irregular episodes of hematuria and/or menometrorrhagia associated with important anatomical anomalies of the female reproductive system. In some cases a conservative hormonal therapy with levonorgestrel was attempted in order to reduce bleeding, however there was a relapse of bleeding which in many cases resulted in severe anemia with the need for hospitalization and blood transfusion and in others patients it justified a surgical approach. Other authors have used hormone therapy with luteinizing hormone releasing hormone (LHRH) or selective radiological embolization in order to stop active bleeding [20]. Only a few cases of full-term pregnancy were described in women with KTS and were usually cases with limited uterine involvement. The clinical management of these patients varies from case to case. Our patient presented severe anomalies of uterine anatomy incompatible with pregnancy and the continuous episodes of bleeding with the need for blood transfusion justified the radical surgical treatment with the execution of hysteroannexectomy.

4. Conclusions

This case report shows how uterine involvement in patients with KTS, althought rare and with extremely variable clinical manifestations, is actually a relevant event that not only significantly affects the reproductive capacity of the woman but which potentially puts patients' lives at risk because of an unpredictable bleeding. Diagnosis is fundamentally based on the medical history and clinical identification of pathognomonic signs and symptoms associated with the possible involvement of the various visceral organs. Careful clinical observation and radiological study should allow for early identification of complications and the best treatment.

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No ethical approval needed for this manuscript.

Consent to publish

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CRediT authorship contribution statement

All of the authors have read an approved the final manuscript. All authors contributed significantly to the present research.

DBG: Participated substantially in conception, design and execution of the study and in the analysis and interpretation of the data; also participated substantially in the drafting and editing of the manuscript.

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Declaration of competing interest

The authors declare that they have no competing interests.

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