Case report

Discovery of vascular transposition during gastrectomy

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ARTICLE INFO
Keywords:
Inferior vena cava
Aorta
Congenital anomalies
Vascular transposition

ABSTRACT
Introduction: The congenital anomalies of the large vessels are rare, of which the left inferior vena cava and the aorta on the right, occupies the 2nd rank after the duplicity. They represent a challenge in some visceral, urological and vascular surgeries. We report the case of an incidental finding during the operative exploration of a patient who has a gastric adenocarcinoma with isolated cells and who has benefited from a total gastrectomy and this transposition confirmed by a postoperative CT scan.

Materials and methods: We report a case of strong discovery of vascular transposition during gastrectomy in the department visceral surgery A1 of the ibn Rochd Hospital in Casablanca.

Results: Our patient admitted for episodes of small hematemesis with esophageal syndrome. The clinical examination was unremarkable. FOGD showed ulcerated tumor of the angulus with at the anatomical pathology examination: medium to poorly differentiated gastric adenocarcinoma with an isolated cell component. The preoperative radiological workup made of an abdominal CT scan showed a non-stenotic circumferential irregular gastric parietal thickening of the antropyloric region measuring 15 mm of maximum thickness extended over 60 mm without any other abnormalities. During the surgical exploration we fortuitously found the presence of an anatomical variety: a left IVC and the aorta on the right; postoperatively the patient benefited from a postoperative scan which confirmed the presence of an anatomical variety: a left IVC and the aorta on the right.

Conclusion: The presence of a left IVC does not contraindicate any surgical procedure; however, knowledge of this type of variant remains essential, requiring a good radiological analysis in order to avoid possible intraoperative surprises.

1. Introduction

Transposition of the inferior vena cava (IVC) in relation to the aorta is an exceptional situation occupying the 2nd rank of vascular malformations; often discovered by chance during a radiological assessment, knowledge of this type of anatomical variant is essential for any surgeon.

Anomalies of the inferior vena cava (IVC) are rare, but of great importance in certain urological, visceral, vascular and transplant surgeries. Left IVC, the second most common anomaly after duplication, with an incidence rate of up to 3 %, is seen in approximately 0.04 % to 0.5 % of the population [1–7].

This abnormality is most often discovered incidentally on imaging studies including computed tomography (CT) or magnetic resonance imaging (MRI) performed for other reasons Careful evaluation of these abnormalities can prevent iatrogenic injury.

We report the case of a patient admitted for total gastrectomy with incidental discovery of a left IVC and right aorta during exploration.

This case report is compliant with the SCARE Guidelines 2020 [11].

2. Patient and observation

This is a 70-year-old man, admitted for episodes of small hematemesis with esophageal syndrome. The clinical examination was unremarkable. FOGD showed ulcerated tumor of the angulus with at the anatomical pathology examination: medium to poorly differentiated gastric adenocarcinoma with an isolated cell component.

The preoperative radiological workup made of an abdominal CT scan showed a non-stenotic circumferential irregular gastric parietal thickening of the antropyloric region measuring 15 mm of maximum thickness extended over 60 mm without any other abnormalities. During the
surgical exploration we fortuitously found the presence of an anatomical variety: a left IVC and the aorta on the right (Fig. 1); postoperatively the patient benefited from a postoperative scan which confirmed the presence of an anatomical variety: a left IVC and the aorta on the right (Fig. 2) the surgical procedure was performed on a scheduled date with a correct pre-anesthetic assessment; the procedure was performed by an assistant professor in general surgery and two residents in the same specialty.

The operation was performed in the operating room of the A1 visceral department at the CHU ibn rochd hospital in Casablanca, Morocco the patient was satisfied with the intervention and the improvement of his health in the short and long term.

3. Discussion

Left ICV and right aorta is a rare anatomical variant with an incidence of 0.2–0.5 % [1].

Abnormalities of the IVC occur in the complex process of embryogenesis, which takes place between the 6th and 10th week of gestation [4].

At the beginning of embryogenesis the venous drainage of the left and right sides of the body occurs independently of each other. After the regression of the majority of the left supra-cardinal veins and the veins of the interconnection between the sacro-cardinal veins, the entire venous drainage of the left lower limb is made towards the right side, thus forming the IVC [6].

A disturbance in this process can lead to anatomical variants in position [1]. Its clinical diagnosis has remained asymptomatic [1]. However, cases of venous thrombosis and pulmonary embolism due to an anomaly of the IVC have been reported in the literature [3,9,10]. This could therefore cause iatrogenic damage to the vein and lead to hemorrhage [3,8,11].

CT is the examination of choice to detect these vascular variations with a sensitivity and specificity for arterial abnormalities of 91.6 and 98.2 % and venous of 96.7 and 90 %, respectively [2], with some trap images such as left ureteral dilatation or adenopathy, where an inexperienced and unsophisticated radiologist may miss a left ICV [2].

Abnormalities of the IVC should be considered during preoperative imaging, as they may be misdiagnosed as para-aortic adenopathy, tumor, or dilated gonadal vein that may lead to iatrogenic injury during surgery.

In our patient the discovery was fortuitous intraoperatively during exploration and then the patient benefited from a postoperative CT scan which confirmed the transposition of the IVC and the aorta.

4. Conclusion

The presence of a left IVC does not contraindicate any surgical procedure; however, knowledge of this type of variant remains essential, requiring a good radiological analysis in order to avoid possible intraoperative surprises.

Consent written

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

Provenance and peer review

Not commissioned, externally peer-reviewed.

Sources of funding

None.
Ethical approval

As per international standard written ethical approval has been collected and preserved by the author(s).

Research registration (for case reports detailing a new surgical technique or new equipment/technology)

None.

Guarantor

Dr. E F

CRediT authorship contribution statement

This work was carried out in collaboration among all authors. All authors contributed to the conduct of this work. They also declare that they have read and approved the final version of the manuscript.

Declaration of competing interest

None.

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