single-stage resection through a laparotomy alone for the ICL without intracardiac dilation.

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EDITORIAL COMMENTARY

Case reporter's notebook: The who, what, when, where, how, and why of extraction of a benign intracaval tumor

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WHO

A patient who successfully underwent removal of a benign tumor extending into the inferior vena cava (IVC).

WHAT

Complete resection of intracardiac leiomatosis via laparotomy and an incision in the IVC under cardiopulmonary bypass with a beating heart and without deep hypothermia and circulatory arrest.

WHEN

Resection of intracaval tumor at the same time and through the same incision as planned hysterectomy and bilateral salpingo-oophorectomy.

WHERE

The entire operation was performed through a laparotomy incision without thoracotomy and with peripheral cardiopulmonary bypass. Arterial cannulation was in the femoral artery with venous cannulation of the femoral and jugular veins. The IVC was isolated and controlled between the renal veins and several centimeters below the ovarian vein that was the entry point of the tumor into the vena cava.

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Central Message

Complete resection of intracardiac extension of an abdominal tumor is feasible via laparotomy and an incision in the IVC under cardiopulmonary bypass with a beating heart and without deep hypothermia and circulatory arrest.

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HOW

After laparotomy and isolation of the IVC, peripheral cardiopulmonary bypass was initiated. The heart remained beating throughout the procedure. The distal vena cava was controlled by constriction of the distal umbilical tape encircling the IVC near the ovarian vein. Until it was removed, the tumor thrombus controlled bleeding from the proximal cava and pump suckers were used to maintain a reasonably dry field. After removal of the tumor, the proximal caval tape was tightened to secure retrograde bleeding.

WHY

This case highlights several interesting and potentially useful approaches for managing the extension of benign neoplasms into the IVC.

- An intracaval tumor can be removed safely via a single laparotomy incision.
- In this patient, the tumor involved the ovarian vein. The authors¹ note that when the tumor extends to the iliac veins, proper control of major venous tributaries and cardiomy suction on peripheral bypass can control bleeding adequately to perform this procedure.
- Deep hypothermia and circulatory arrest can be avoided.

The limitations of this procedure also should be acknowledged.

1. Tumors that exceed the native diameter of the vena cava may be difficult to extract. This is also the case in situations in which the tumor is adherent to the wall of the cava or to the right atrium.
2. Might not tumor embolus be of concern when blood scavenged by the cardiomy suction is returned to the patient? This risk likely is low when the neoplasm to be extracted is benign. For malignant tumors or when there is the possibility of occult malignancy, however, this technique should be avoided.

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