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Right atrial thrombus from renal cancer

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Right atrial thrombus from renal cancer

To the Editor:

Renal cancer may involve the inferior vena cava (IVC). Intraoperative transesophageal echocardiography (TEE) is often requested to monitor for the presence of cancer thrombus at the time of surgery. A case in which the cancer thrombus was noted in the right atria (RA) on TEE after insertion of the probe is presented. The RA cancer thrombus disappeared while the image was recorded and the surgical course was altered because of the TEE finding.

A 76-year-old man was diagnosed with a right renal mass and a level two (infra-hepatic) IVC thrombus by computed tomography (CT) and magnetic resonance imaging (MRI) [1]. The mass showed rapid growth over a 4-month period. In anticipation of a radical right nephrectomy, the patient underwent a right renal artery embolization without incident on the day prior to surgery. On the day of surgery, a TEE probe was inserted for intraoperative detection of the IVC thrombus. After insertion of the TEE probe, a tumbling mass was observed in the RA (Fig. 1) while the surgeons were gaining exposure of the kidney. About a minute later, the mass was no longer visible (Fig. 2). Within two to three minutes, the patient's end-tidal CO_2 ($ETCO_2$) decreased from 33 to 22 mmHg and pO_2 from 445 to 282 mmHg on an inspired fraction of oxygen (FIO_2) of 0.75. There was no noticeable decrease in monitored O_2 saturation. Over the next 30 minutes, the patient became hypotensive, with systolic blood pressure (SBP) in the 80% range as measured by right radial arterial catheter. Pulmonary artery pressures were not available as no Swan-Ganz catheter was placed prior to the event. There was no TEE evidence of right heart dilation. Thrombus was not seen in the pulmonary arteries. Blood pressure (BP) returned to normal after fluid resuscitation. In light of these events, it was decided by both the surgical and anesthesia teams to abandon the surgical procedure in favor of anticoagulation to treat a presumptive pulmonary embolism. In the postoperative period, the patient developed multiple complications and expired 9 days after surgery from multi-organ system failure.

About 5% to 10% of renal cancers extend into the IVC, with a higher incidence of extension with right-sided renal cancer and renal cell carcinomas (4% to 14%) [2]. Radical nephrectomy with thrombectomy is the treatment of choice [1]. Pulmonary embolization is a rare (3% to 4%) complication during this procedure [1,3]. Preoperative

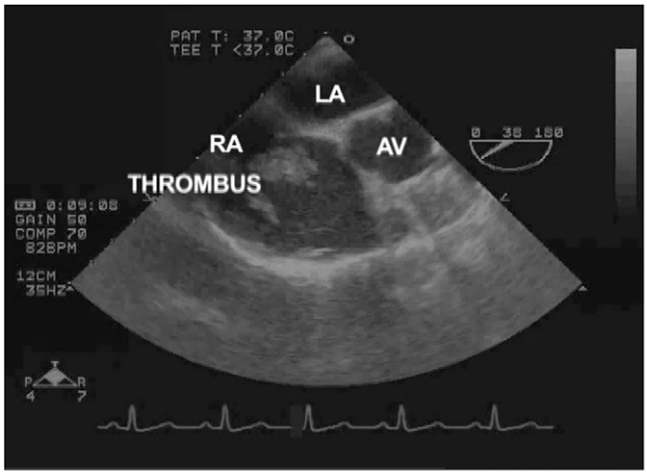

Fig. 1 Modified mid-esophageal aortic valve short-axis view at 38 degrees. Note the thrombus in the right atrium (RA). AV=aortic valve, LA=left atrium.

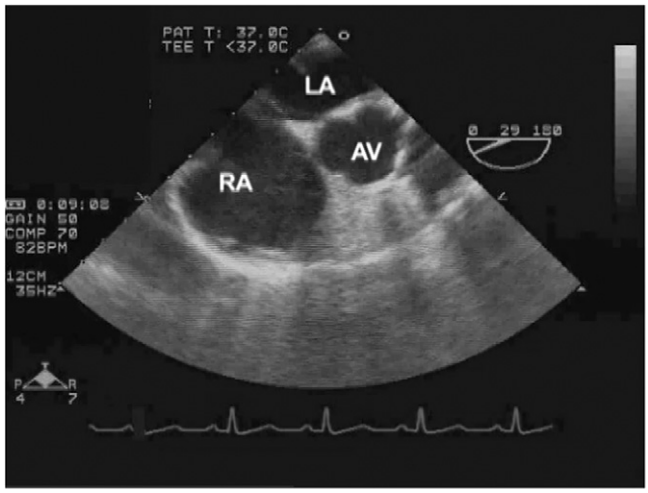

Fig. 2 Modified mid-esophageal aortic valve short-axis view at 29 degrees. Note that the thrombus seen in Fig. 1 has disappeared. LA=left atrium, AV=aortic valve, RA=right atrium.

evaluation of tumor extension with MRI is usually recommended as invasion into the right atrium typically necessitates cardiopulmonary bypass to avoid tumor embolization [1,4]. The present case shows the advantage of TEE over MRI and CT in evaluating cephalad extension into the IVC. While CT and MRI may be more sensitive in evaluating cephalad extension, they may not reflect the extension of the IVC thrombus. It is important to know the cephalad extension as it may dictate the surgical approach. Visualization of a right atrial mass followed by its disappearance and concomitant changes in $ETCO_2$, PO_2, and BP provided enough evidence of pulmonary embolism to end the surgical procedure and begin treatment with heparin without spiral CT confirmation.

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References

[1] Parekh DJ, Cookson MS, Chapman W, et al. Renal cell carcinoma with renal vein and inferior vena caval involvement: clinicopathological features, surgical techniques and outcomes. J Urol 2005;173:1897-902.
[2] Marshall FF, Kietrick DD, Baumgartner WA, Reitz BA. Surgical management of renal cell carcinoma with intracaval neoplastic extension above the hepatic veins. J Urol 1988;139:1166-72.
[3] Tsuji Y, Goto A, Hara I, et al. Renal cell carcinoma with extension of tumor thrombus into the vena cava: surgical strategy and prognosis. J Vasc Surg 2001;33:789-96.
[4] Oto A, Herts BR, Remer EM, Novick AC. Inferior vena cava tumor thrombus in renal cell carcinoma: staging by MR imaging and impact on surgical treatment. AJR Am J Roentgenol 1998;171:1619-24.

Duration of pain after a combination of peribulbar anesthesia and local anesthetic in the ball after enucleation or evisceration: 115 cases

To the Editor:

A technique that combines peribulbar anesthesia and local anesthetic placed in the ball implant is presented. Following Rouen University Hospital Ethics Committee approval and patient consent, 115 patients who were scheduled for enucleation or evisceration and primary orbital hydroxyapatite implantation, were enrolled in this prospective, non blinded study.

Patients received hydroxyzine (0.5 to 1.0 mg/kg; UCB Pharma SA) or alprazolam (0.01 mg/kg; Pharmacia Upjohn) one hour before surgery. General anesthesia was induced with propofol 0.5 to two mg/kg, sufentanil (maximum bolus 0.3 μg/kg), and atracurium. Anesthesia was maintained by isoflurane or propofol three to 6 mg/kg/hr. Peribulbar blocks were performed using bupivacaine 0.50% and epinephrine. A dual peribulbar block (inferotemporal and superomedial injections) was performed using a 25-gauge, 32 mm peribulbar needle. The needle was inserted percutaneously 25 mm from the skin surface. A hydroxyapatite ball was filled with bupivacaine. Pain was evaluated every 60 minutes for 24 hours.

To estimate duration of analgesia, the first patient's request for analgesic drug was recorded. For visual analog scale (VAS) scores between 1 and 3, paracetamol (three g/24 hrs) was used. For VAS between 3 and 6, intravenous tramadol (one mg/kg: repeated every 4 hrs if necessary) was used. For VAS over 6, morphine was used.

A total of 61 women (53%) and 54 men (46.9%), ranging in age from 17 to 92 years, with an average age of 57.3 years, completed the study. The 115 surgical procedures comprised 68 eviscerations (59.1%) and 47 enucleations (40.8%). Reasons for the enucleation or evisceration procedures included, respectively, trauma (42/115), tumor (20/115), infection (20/115), and severe pain (33/115).

Peribulbar anesthesia was performed after general anesthesia and just before the surgical procedure. A total volume of 14.78 mL (SD ± 4.19 mL; range 6-20 mL) of anesthetic was then very slowly injected. All implants were hydroxyapatite spheres, with sizes ranging from 16 mm to 18 mm and were filled, respectively, with 1.4 mL and 1.6 mL of bupivacaine 0.50% with epinephrine.

All patients were discharged 24 hours after the procedure. No complications were encountered. The mean duration of postoperative analgesia was 9.8 hours (SD ± 7.8 hrs, range three to 24 hrs). In some patients, analgesia lasted three hours and in others, 24 hours (Fig. 1).

A single retrobulbar nerve block or a peribulbar block is administered with local anesthetics to counteract pain [1,2]. This direct injection of anesthesia provides rapid and effective pain relief, but the effect is short-lived. Authors have proposed placement of an orbital epidural catheter for infusion of local anesthetics [3]. Almost all procedures involve ball implantation during general anesthesia, supplemented with a retrobulbar injection of 2% lidocaine hydrochloride (Xylocaine), 0.5% bupivacaine hydrochloride (with epinephrine, 1:100,000), and hyaluronidase (Wydase). The retrobulbar block improves hemostasis through the vasoconstrictive effect of epinephrine, and

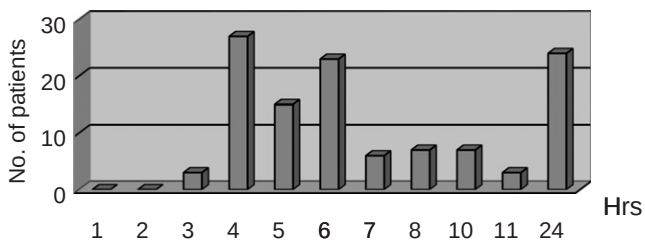

Fig. 1 Duration of analgesia in the study patients.