Single-stage Resection of Intracaval Leiomyomatosis with Intracardiac Extension

JM Rosenblum MD PhD, D Cervantes MD, AW Unzeitig MD, V Polsani MD, JP Gott MD, A Wiskind MD, CB Ross MD

The Georgia Vascular Society
4th Annual Scientific Sessions
September 2016
No Disclosures
**Background:**

- **Intravascular leiomyoma (IVL) is a benign smooth muscle tumor extending into adjacent vascular structures**
  - Lack mitotic figures on microscopy and discrete from vascular endothelium
  - Originates from a uterine primary tumor
  - Intracaval extension via the uterine or ovarian veins
  - Reports of lengthy asymptomatic periods (up to 15yrs) between hysterectomy for uterine myoma and presentation with intravascular spread

- **IVL with intracardiac extension is a rare process**
  - First reported case in the literature in 1907, fewer than 100 cases reported to date
  - First successful resection reported in 1982, requiring two-stage approach with CPB
  - Recent use of morecellation for laparoscopic hysterectomy has been questioned by the SGO due to perceived increased risk of IVL

- **Current reports have described one- and two-stage resection**
  - Recent series suggest that single-stage approach is safe, but there have been limited successful reports of intracardiac IVL resection without CPB

---

To date, few studies have reported the successful resection of intravascular leiomyomatosis with intracardiac extension using a single-stage approach without CPB.

Goal:

To demonstrate the feasibility of single-stage resection of intracardiac IVL without the use of CPB
- necessity of multidisciplinary approach
- intraoperative use of TEE and vascular ultrasound
**Preoperative Workup:**

**Patient 1:**
- 48y F history of lap hysterectomy 2011
- presented to PCP w/ exertional dyspnea
- workup revealed intracaval tumor extending to R heart from pelvic origin
- Percutaneous pelvic biopsy consistent w/ leiomyoma
- ECHO showed R atrial mass extension w/ questionable involvement of the TV

**Patient 2:**
- 54y F no prior medical history
- presented to PCP w/ chronic vague abdominal pain
- workup revealed L pelvic/ovarian mass with intravascular tumor extension
- imaging demonstrated continuation into the R atrium

*Evaluated by GYN Oncology, Cardiac Surgery, and Vascular Surgery*
Preoperative Workup:

Patient 1: CT w/ IV contrast
Preoperative Workup:

**Patient 1:** cMRI
Preoperative Workup:

Patient 2: MRI venogram
Preoperative Workup:

Patient 2: cMRI
Operative Planning:

- Multidisciplinary team: Vascular Surgery, GYN Oncology, Cardiac Surgery

- Intraoperative TEE and vascular ultrasound guidance

- Initial abdominal approach with preparation for CPB and sternotomy
  - prepared for conversion if incomplete resection from abdominal approach
Operative Conduct:
Operative Conduct:
Operative Conduct:
Operative Conduct:
Operative Conduct:
Operative Conduct:
Operative Conduct:
Post-operative Recovery:

• Patient 2 had successful tumor excision without need for CPB, based on intraoperative TEE

• Pathology in both patients was consistent with benign leiomyoma

• Patient 1 TV vegetation proved to be coincident myxoma

• Both patients discharged to home on POD #7 in good condition

• Follow-up imaging at 6mo and 1year demonstrated good cardiac function and no evidence of tumor recurrence
  • Patient 2 has residual tumor in ovarian vein
Post-operative Follow-up:

Patient 1
15mo Post-op

MRI Venogram

Patient 2
6mo Post-op
Conclusions:

- Intravascular leiomyomatosis generally originates from a pelvic organ
- Intracardiac extension is a rare occurrence and requires careful operative planning
- Intraoperative TEE and vascular ultrasound is essential to successful resection

For patients with intracardiac extension of intracaval leiomyomatosis, single-stage resection via an abdominal approach is safe and effective, but requires a multidisciplinary team prepared for conversion to sternotomy and CPB.
Thank You