

# Intraoperative asystole associated with fibroid uterus

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## Summary

The authors present the case of a patient with a large retroperitoneal fibroid whose laparotomy was abandoned due to intraoperative asystole. Perioperative management and possible etiological factors are discussed in this paper.

*Key words:* Retroperitoneal fibroid; Asystole; Uterus.

## Introduction

Intraoperative asystole during benign gynaecological surgery is a rare event. The authors present a patient whose prior procedure was abandoned due to asystole of unknown etiology. The pre- and intraoperative management of such a patient requires careful planning.

## Case Report

A 47-year-old para two attended a gynaecologist in a secondary centre complaining of menorrhagia. An ultrasound suggested a 15-cm uterine fibroid and a decision was made for the patient to undergo laparotomy with either myomectomy or hysterectomy. This patient had no significant past medical history and no surgical history of significance.

Intraoperatively a large retroperitoneal pelvic mass was identified. This appeared to be separate from the uterus and ovaries. Upon manipulation of the mass, the patient developed asystole. The attending anaesthetist resuscitated the patient using atropine, such that both the heart rate and blood pressure returned to within normal ranges. Once the patient was stabilised, the assistance of a general surgeon was sought. Prior to gaining surgical access to the retroperitoneum, the patient again developed asystole once the mass was palpated. The patient was again stabilised and the procedure abandoned. Referral was sent to the tertiary gynae-oncology centre following an uneventful recovery.

At clinical review, possible etiologies including cardiac dysrhythmia or the presence of pheochromocytoma or neuroblastoma were explored. Preoperative investigations included computerised tomography scans and magnetic resonance imaging of the abdomen and pelvis both of which demonstrated a large pelvic mass with the appearances of a leiomyoma. No other masses were present and there was no appreciable lymphadenopathy. Urinary catecholamines and metanephrines were not present. Electrocardiogram was normal. The patient was reviewed by the anaesthetic team and a decision was made that during repeat laparotomy, external pacing pads would be placed prior to induction of general anaesthesia.

Repeat laparotomy demonstrated a large pelvic mass which originated from the uterine cervix. It had invaded the retroperitoneal space and entered the para-rectal space, inferior to the sigmoid mesentery. Upon opening the abdomen, the patient became severely bradycardic and hypotensive which responded to two

separate doses of atropine 0.5 mg given intravenously. A total abdominal hysterectomy was performed and the leiomyoma was removed in its entirety (Figure 1).

The patient had an uneventful recovery and was reviewed postoperatively by cardiology. Investigations included further electrocardiogram and a cardiac stress test, both of which were unremarkable. Histological assessment concluded that the leiomyoma was entirely benign in nature and the uterus was unremarkable.

## Discussion

The development of asystole during hysterectomy or myomectomy is very rare. A comprehensive literature search, using PubMed and Medline, was performed and few papers describing this event were found.

One possible etiological factor is vagal stimulation during dissection of the retroperitoneum, leading to severe bradycardia and hypotension. Although blood pressure may decrease while the retroperitoneum is accessed, asystole is an extremely rare event. Atropine is employed to prevent and treat this complication.



Figure 1. — Uterus, tubes, and cervical fibroid.

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A further possible cause is sick sinus syndrome. This has been described in one case report as having occurred during hysterectomy [1]. Arrhythmias, including severe bradycardia, may occur intraoperatively in patients with this syndrome and atropine is employed as part of their management.

Vasopressin is commonly used as an adjunct to reduce blood loss during resection of leiomyomae. It has been described in two separate reports [2, 3] as leading to cardiac arrest. In both of the surgical procedures that this patient underwent, vasopressin was not used.

Rarely, leiomyomae or leiomyosarcomae [4] may undergo intravascular spread and their growth can reach the right atrium, leading to cardiac complications. This patient had no such intravascular spread and the leiomyoma did not undergo sarcomatous change.

### Conclusions

This case highlights the need for awareness of the management of severe bradycardia or asystole encountered in retroperitoneal gynaecological surgery. The authors recommend early and judicious use of atropine, the use of external pacing pads, and gentle handling of retroperi-

toneal masses. They also recommend consideration of possible etiologies including sick sinus syndrome and vagal stimulation.

### References

- [1] Ishida R., Shido A., Kishimoto T., Sakura S., Saito Y.: "Prolonged cardiac arrest unveiled silent sick sinus syndrome during general and epidural anaesthesia". *J. Anesth.*, 2007, 21, 62.
- [2] Hobo R., Netsu S., Koyasu Y., Tsutsumi O.: "Bradycardia and cardiac arrest caused by intramyometrial injection of vasopressin during laparoscopically assisted myomectomy" *Obstet. Gynecol.*, 2009, 113, 484.
- [3] Hung M.H., Wang Y.M., Chia Y.Y., Chou Y.M., Liu K.: "Intramyometrial injection of vasopressin causes bradycardia and cardiac arrest—a report of two cases". *Acta Anaesthesiol. Taiwan*, 2006, 44, 243.
- [4] Noedir A., Stolf G., Dos Santos G., Haddad L.S.: "Unusual abdominal tumors with intracardiac extension, two cases with successful surgical resection". *Rev. Hosp. Clin. Fac. Med. S. Paulo*, 1999, 54 159.

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