

**Stunned -Potential Adverse effects of vasopressin**<sup>1</sup>Dr. Suchet Sharath,<sup>2</sup>Dr. Prashanth,<sup>3</sup>Dr. Yashwanth,<sup>4</sup>Dr. Akhil,<sup>5</sup>Dr. Meghan,**Corresponding Author:** Dr. Suchet Sharath,**How to citation this article:** Dr. Suchet Sharath, Dr. Prashanth, Dr. Yashwanth, Dr. Akhil, Dr. Meghan, “Stunned - Potential Adverse effects of vasopressin”, IJMACR- March - 2023, Volume – 6, Issue - 2, P. No. 706 – 708.**Open Access Article:** © 2023, Dr. Suchet Sharath, et al. This is an open access journal and article distributed under the terms of the creative commons attribution license (<http://creativecommons.org/licenses/by/4.0>). Which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.**Type of Publication:** Case Report**Conflicts of Interest:** Nil**Abstract**

A 32 years old nulli para female (wt.=70kg, ht 62cm) scheduled for open myomectomy in view of primary infertility with uterine myoma in a tertiary care hospital in southern India. Patient was diagnosed with fibroid 3 years ago and was posted for the same in view of nulliparity. Patient was connected to monitor with plethysmography, NIBP and ECG, vitals were monitored. Patient was given spinal anesthesia and surgery was commenced. 20 units of Intra myometrial injection of vasopressin diluted ,0.5 units pre cc in 2 separate 20ml syringes was injected. Flat line ECG was noted after 2minutes of injection. Inj adrenaline given and patient was intubated, sinus rhythm observed and started on inotropic support. Surgery was continued, patient shifted to ICU, ionotropes tapered extubated the following day. Patient was discharged on post operative day 5.

**Keywords:** Anaphylaxis, vasopressin**Introduction**

Vasopressin is a commonly used locally-injected vasoconstrictor used to reduce bleeding during

gynecological surgery. However in these cases vasopressin can induce adverse effects, including bradycardia, myocardial infarction and cardiac arrest. Elevated blood concentrations of vasopressin may induce the sympatho inhibitory reflex by increasing blood pressure and augment the sympathoinhibitory reflex by activating the area postrema. Hence presenting rare case of ana phylaxis shock for vasopressin

**Case history**

A 32 years old nulli para female (wt.=70kg, ht 62cm) scheduled for open myomectomy in view of primary infertility with uterine myoma in a tertiary care hospital in southern India. Patient was diagnosed with fibroid 3 years ago and was posted for the same in view of nulliparity. Patient was connected to monitor with plethysmography, NIBP and ECG, vitals were monitored. Patient was given spinal anesthesia and surgery was commenced. 20 units of Intra myometrial injection of vasopressin diluted ,0.5 units pre cc in 2 separate 20ml syringes was injected . Flat line ECG was noted after 2minutes of injection.

Following cardiac arrest following flat line ecg and plathismography lines was noted and 1 cycle of cardiopulmonary resuscitation was initiated according to ACLS guidelines. Inj adrenaline given and patient was intubated, sinus rhythm observed and started on inotropic support. Surgery was continued, patient shifted to ICU, ionotropes tapered extubated the following day. Patient was discharged on post operative day 5.

Patient was on ventilator overnight, extubated the next day and inotropes tapered and stopped. Following 2 d echo showed post cardiac arrest changes observed with no abnormal findings on the postoperative laboratory studies, chest X-ray. The next day patient was conscious oriented to time place and person with no other notable symptoms. The patient was discharged on postoperative day 5 after 2 days icu stay. The report discusses the potential adverse effects of local vasopressin injection (intra myometrial) during open myomectomy.

### **Discussion**

Vasopressin increases blood pressure by contracting the smooth muscles of blood vessels. It can be used in patients with cases of shock and cardiopulmonary resuscitation 1. In obstetrics and gynecology, local vasopressin injections are used to reduce bleeding during myomectomy, excision of ovarian endometriomas and conization<sup>2</sup>.

However, a high concentration of vasopressin in the blood can induce gastrointestinal and myocardial ischemia and in severe cases, myocardial infarction or cardiac arrest.<sup>1,2</sup> There have also been reports of bradycardia, anaphylaxis and bronchospasm.<sup>1,2</sup> This current report describes a case of cardiac arrest caused by local intra myometrial injection of vasopressin in a patient

with uterine leiomyoma undergoing open abdominal myomectomy and reviews the relevant literature.

Vasopressin is a peptide hormone consisting of nine amino acids that is produced in the hypothalamus and is stored and released by the posterior pituitary gland. The normal plasma concentration of vasopressin is <4 pg./ml.<sup>1</sup> Vasopressin receptors are classified into V1, V2, and V3.<sup>1</sup> V1 and V2 receptors are distributed in the periphery, whereas V1 and V3 receptors are found in the central nervous system.<sup>1</sup> Because the uterus has V1 receptors, local injection usually 20 IU given intraarterial with 15 gauge needle can induce can not only Vaso constriction but also uterine contractions.

However a high concentration of vasopressin in the blood can cause adverse events, such as bradycardia, myocardial ischemia, myocardial infarction and cardiac arrest.<sup>1,2</sup> A sudden increase in blood pressure activates the baroreceptors in the aortic arch and carotid sinus, which induce the sympatho inhibitory reflex in the nucleus tractus solitarius, thereby lowering cardiac contractibility and heart rate and in severe cases, causing cardiac arrest.<sup>1,2,4-7</sup>

In conclusion, this current case report describes a case of cardiac arrest after a local injection of vasopressin causing sudden increase in blood vasopressin caused bradycardia and cardiac arrest. Fortunately, patient was extubated and tapered off inotropic support with normal study. Surgeons should note that even when vasopressin is locally injected, some absorption into the blood may cause adverse events. They should ensure that vasopressin solutions are diluted well and slowly injected using a small gauge needle. Furthermore, inter departmental communication is important, as the use of vasopressin may vary across medical departments. Anaesthesiologists should be aware of the physiological

changes during these procedures and prepare for potential problems that may occur. In addition, carefully observing the patient's state before surgery is important.

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