

# Superficial Cervical Plexus Block For I and D Of Ludwig's Angina In Pregnancy

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## Abstract

A 26-year-old pregnant female of 34 weeks gestation presented with swelling over the anterior aspect of the neck, trismus and a normal obstetrics history. Our approach included regional technique of superficial cervical plexus block, under which rapid decompression of the abscess in the submandibular region was done.

## INTRODUCTION

Ludwig's angina is named after a German physician who described the condition for the first time in 1948, is a rapidly spreading cellulitis that may produce upper airway obstruction, often leading to death. The most common cause of Ludwig's angina is odontogenic infections<sup>1</sup>.

During life-threatening infectious situations, like Ludwig's angina, risk of maternal and fetal septicemia and asphyxia are increased. The abscess of the deep facial and cervical spaces with trismus requires general anesthetic experienced in fiberoptic intubation<sup>2</sup>.

A study by Pandit et al (2003) showed that local anesthetics cross the deep cervical fascia and blocks the cervical nerves at their roots, so superficial cervical plexus innervates the skin of the anterolateral neck<sup>3</sup>.

## CASE REPORT

A 26-year-old, ASA grade I, pregnant female with a history of 34 weeks of amenorrhea presented with a swelling over the anterior aspect of the neck for 5-6 days. The patient was febrile (38.7°C), BP 110/54 mmHg, Pulse 136/mt. She was able to maintain an oxygen saturation of 96% in room air. Her leucocyte count was raised to 20000 cells/uL, the rest of her investigations were within normal limit. The swelling over the submandibular region, which was 12cmX10cm, did not move with deglutition. The mass was soft in consistency, the local temperature was elevated, and it was tender on palpation. The swelling over the submandibular region was diagnosed as Ludwig's angina. The mouth opening of the patient was restricted to one finger (5mm).

Figure 1



The patient was shifted to OT. Oxygen was supplemented. Routine monitors were attached. Emergency cricothyrotomy and tracheostomy kits were readily available.

Due to the unavailability of fiberoptic bronchoscope and the inability to use a blind nasal technique because of the risk for aspiration of pus from rupturing the mass, an attempt at decompression under superficial cervical plexus block was planned. The procedure was explained to the patient and the required consent was obtained.

The patient was placed in the supine position, with a pillow under the left hip to prevent aortocaval compression. Her head was turned to her right side. Continuous fetal monitoring was done by the department of obstetrics and

gynaecology throughout the procedure. Inj ranitidine 50mg i.v and inj. ondansetron 4mg I.V was given as antacid prophylaxis.

**Figure 2**



We used all aseptic precautions, after local infiltration with lidocaine 1% at the midpoint of the line connecting the mastoid process with Chassaignac's tubercle of C<sub>6</sub> transverse process. A local anesthetic, Bupivacaine 0.25%, 10ml, was injected after negative aspiration using a fan technique with superior-inferior needle redirections alongside the posterior border of the sternocleidomastoid muscle<sup>4</sup>. Following this procedure, the pain subsided and the patient was able to open her mouth more widely. The maxilla facial surgeon gave an inferior alveolar nerve block intraorally. Dense anesthesia was achieved in 7 mins. A rapid decompression of the left submandibular region was done.

**Figure 3**



## DISCUSSION

The development and extension of intraoral infections is caused by the unique anatomy of the floor of the oral cavity. Periapical dental infections are the main source of infection. If untreated, the infection may spread from the primary spaces to extend to the inner cortex of the mandible and may ultimately involve the posterior margin of the myohyoid muscle to the submandibular space<sup>5</sup>. Cellulitis of the anterior aspect of neck may make a tracheostomy more difficult. Extension of the infection further into the carotid sheath or mediastinum leads to thoracic infections.

Options include orotracheal, blind nasal and fiberoptic intubation or cricothyroidotomy with a jet insufflation. We chose to employ a cervical plexus block as anesthesia for the surgical decompression<sup>4,6</sup>. The block permitted a thorough I & D. In addition, a transection of the mylohyoid with lowering of the floor of the mouth provided rapid relief of respiratory obstruction.

Anesthesia in a pregnant patient is quite a challenge. In pregnancy, a patient may have to undergo elective or emergency surgery. Pregnancy is accompanied by many physiological changes, which may place the mother at high risk of infection<sup>7</sup>. In case of surgeries before 24 weeks of gestation, it is better to postpone it until the second trimester or post-partum, if possible. If surgery is necessary, prophylaxis with an antacid to prevent aspiration, maintain

oxygenation, normocarbia, normotension and euglycemia, and documentation of fetal heart tones before and after the surgery is very necessary. Management of parturient more than 24 weeks involves postponement until postpartum, if possible. If surgery is necessary, use of perioperative tocolytic agents, aspiration prophylaxis, left uterine displacement perioperatively. Intraoperatively maintaining oxygenation, normocarbia, normotension and euglycemia, proper monitoring of the mother and fetal monitoring intraoperatively and using regional anesthesia for post-operative pain relief are suggested, when possible<sup>8</sup>. In case of emergency surgery, it should be done with optimal anesthesia for the mother, and preferably under regional anesthesia<sup>8</sup>.

Intraoperatively, there is no evidence that any technique of anesthesia is superior to others until the maternal oxygenation and perfusion is maintained<sup>8</sup>.

Our conclusion is that surgeries may be necessary during pregnancy. Prevention of preterm labor is the greatest concern. Superficial cervical plexus block<sup>4</sup> with concomitant mandibular nerve block has a high success rate, low complication and high patient acceptance rate for drainage of

submandibular and submental abscesses. Regional anesthesia also lowers the cost of patient care, shortens the duration of procedure and recovery, has fewer side effects and is the preferred method for anesthetic management in pregnancy.

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