

## Anaesthetic management of a pregnant patient posted for laparoscopic appendectomy in third trimester

Sir,

Acute appendicitis is a common non-obstetrical surgical emergency with an incidence of approximately one per 1500 patients. Some of the features of acute appendicitis (anorexia, nausea, vomiting, leucocytosis, tachycardia, right lower quadrant pain, and abdominal tenderness) are also commonly seen during pregnancy. Displacement of appendix by gravid uterus decreases the ability to localise tenderness and complicates the diagnosis. Hence, there may be delay in diagnosis which may increase the risk of perforation and thus increasing the rate of maternal morbidity and foetal loss. Laparoscopy is mostly recommended during the first two trimesters, as alternative diagnosis can be evaluated in case of normal appendix.<sup>[1]</sup>

We report a case of 25-year-old female with 28 weeks gestation posted for laparoscopic appendectomy with no significant previous surgical/medical history. All routine investigations including complete blood count, fasting blood sugar, hepatic and renal function tests, arterial blood gases and coagulation profile were

within normal limits. The challenges anticipated were; risks of raised intra-abdominal pressure and CO<sub>2</sub> insufflation precipitating labour and causing foetal hypercarbia respectively.

Pre-operative obstetrical evaluation was done and foetal well-being ascertained. Injection isoxsuprine intravenous (i.v.) infusion at 0.2 mg per min was administered pre-operatively to relax the uterus. Written and informed consent was obtained from the patient and her husband. The patient was kept in supine position with a left lateral tilt of 15° to relieve aortocaval compression. Intra-operative monitoring included pulse oximetry, capnography, electrocardiogram, non-invasive blood pressure, intra-abdominal pressure, respiratory dynamics curves, and loops. Arterial blood gases and foetal heart rate were monitored pre- and post-operatively.

She was administered injection glycopyrrolate 0.2 mg i.v. as premedication and pre-oxygenated for 10 min. Rapid sequence induction was performed with injection propofol 75 mg and succinylcholine 75 mg employing Sellicks' manoeuvre. The airway was secured with 7.5 mm disposable cuffed oral endotracheal tube. Anaesthesia was maintained with oxygen:nitrous oxide (50:50) and isoflurane inhalation (minimum alveolar concentration 0.7); injection atracurium i.v. was used as muscle relaxant. The reversal was ensured with injection neostigmine and injection glycopyrrolate. Injection diclofenac

sodium 75 mg i.v. was administered for analgesia. Some special precautions were taken; pneumatic stockings for thromboprophylaxis, intra-abdominal pressure of 8–10 mmHg to ensure an adequate venous return and slow changes in position. The procedure was conducted successfully, ensuring well-being of both mother as well as the foetus.

The advantages of laparoscopic over open appendectomy are decreased narcotic use, decreased foetal depression, decreased post-operative pain, early ambulation, early return of bowel function and decreased hospital stay. However, there are some drawbacks also viz. accidental injuries to the gravid uterus with Veress needle or trocar, decreased uterine blood flow due to pneumoperitoneum and maternal hypercarbia, which may directly result in foetal respiratory acidosis. Injury to the gravid uterus was prevented by modifying the site of insertion of the trocar according to the position of the uterus.

Management was also based on several key points from the guidelines of the Society of American Gastrointestinal and Endoscopic Surgeons:<sup>[2]</sup> An obstetrical consultation was taken with foetal heart monitoring pre and post-operatively. The patient was positioned in the left lateral decubitus position; intra-abdominal pressure was kept around 10mmHg in order to minimise foetal acidosis (by minimising pressure on IV cholangiogram) and improve maternal ventilation.<sup>[3]</sup> Maternal CO<sub>2</sub> was monitored by capnography.

Pregnancy is a hypercoagulable state. The platelet count may apparently fall but there is actually an increased production and consumption. The risk of thrombosis is further increased in the peri-operative period, due to immobilisation. Therefore, we used the pneumatic leg compression device to prevent deep vein thrombosis.<sup>[4]</sup> There are no clear data regarding the use of unfractionated or low-molecular weight heparin during uncomplicated pregnancy.

Thus, laparoscopic surgery is as safe as open surgery in pregnancy, with no deleterious effects on either mother or foetus provided that all precautions are observed. Very few such cases have been reported.<sup>[5]</sup> In addition, it offers many advantages over open surgery as mentioned above. The rate of foetal loss, complications

and length of procedure are similar for laparoscopic and open appendectomy.<sup>[6]</sup>

**Priyamvada Gupta, Ruchika Choudhary,  
Durga Jethava, Brijesh Kumar Sharma<sup>1</sup>**

Departments of Anaesthesiology and Critical Care and <sup>1</sup>Surgery,  
Mahatma Gandhi Medical College and Hospital, Jaipur,  
Rajasthan, India

**Address for correspondence:**

Dr. Priyamvada Gupta,  
3/592, Pradhan Marg, Malviya Nagar,  
Jaipur - 302 017, Rajasthan, India.  
E-mail: drpriyamvada@hotmail.co.uk

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