CASE REPORT

Appendectomy under local anaesthesia following conscious pain mapping with microlaparoscopy

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The appendix is an under-appreciated source of chronic pelvic pain. Laparoscopic evaluation of the appendix is limited without intra-operative patient feedback on the presence and absence of pain. New techniques using local anaesthesia with conscious sedation have enabled us to perform operative laparoscopic surgery while the patient is awake. We report the first two cases of microlaparoscopic appendectomies performed under local anaesthesia with conscious sedation following diagnosis obtained during conscious pain mapping.

Key words: appendectomy/conscious pain mapping/conscious sedation/local anaesthesia/microlaparoscopy

Introduction

At the turn of the twentieth century, an appeal for incidental appendectomy was made by Fischer (1909) and Goldspohn (1911). Semm (1983) published the first report of laparoscopic appendectomy. Almost eight years later, Nezhat and Nezhat (1991) reported 100 incidental laparoscopic appendectomies performed during outpatient laparoscopic surgery for a variety of gynaecological conditions without major intra-operative complications. Fifty-two appendices were normal, 28 had adhesions, 14 had endometriosis, four showed focal chronic inflammation and one had a carcinoid tumour. These findings demonstrated the potential yield of appendiceal disease associated with the grossly normal appendix.

Rizquez et al. (1993) first described the use of microlaparoscopy under local anaesthesia for the evaluation of patients with chronic pelvic pain. Almeida and Val-Gallas (1997) described the evaluation of the appendix during conscious pain mapping. We report the first two cases in the literature of microlaparoscopic appendectomies performed under local anaesthesia following conscious pain mapping.

Case report 1

A 17 year old nulliparous woman was admitted for microlaparoscopic evaluation of chronic pelvic pain under local anaesthesia with conscious sedation. The patient was treated medically with oral contraceptives and non-steroidal anti-inflammatory medications for pelvic pain and dysmenorrhoea during 11 months prior to surgery. Urinalysis and pregnancy tests were negative. White cell count was 15.0 with 77.6% neutrophils. She weighed 43.6 kg, vital signs were stable and she was afebrile. She had no symptoms consistent with a viral syndrome or pelvic inflammatory disease.

Following our conscious sedation protocol (Almeida et al., 1997a), she received 2 mg midazolam intravenously pre-operatively for conscious sedation. Fentanyl citrate was administered intravenously and titrated to 500 µg during the procedure. After infiltrating the umbilicus with a 10 cc dose of 1% Lidocaine with epinephrine and sodium bicarbonate, a 2 mm Verres needle were inserted. The abdomen was insufflated with 2.5 l carbon dioxide and a 1.8 mm microlaparoscope inserted. A second local anaesthetic block was administered in the midline suprapubic region and a 2 mm trocar inserted into the pelvic cavity. Conscious pain mapping as described by Palter and Olive (1996) and Almeida and Val-Gallas (1997) was performed by systematic probing of pelvic structures and obtaining intra-operative patient feedback regarding the absence or presence of pain. The probing was maintained long enough to elicit a response from the patient. The patient was asked to rate her pain on a scale of 0–4 as described by Almeida et al. (1997b). Conscious pain mapping revealed exquisite tenderness of the appendix and left ovary which had superficial endometriotic implants (both receiving a pain severity score of 4). A 12 mm trocar was inserted into the left pelvic cavity following a local anaesthetic block. Lidocaine (1%) was applied to the ovary and the endometriosis implants fulgurated using 2 mm cautery scissors. The appendix and mesoappendix were irrigated with 1% Lidocaine and removed through the 12 mm trocar using a staple gun. The patient received a total of 40 mg of Diprivan® intravenously during the appendectomy. She remained comfortable and conversed with us during the entire procedure.

The appendix was 6 cm in length and 0.5 cm in diameter. The pathology report revealed filmy adhesions over the mid-portion of the appendix where it was slightly constricted. There were two 5.0 mm fecaliths of the appendiceal lumen, one at the mid-portion and the other at the distal end of the appendix.

The patient was admitted following surgery for 23 h observation without any complications. Post-operative pain was managed with oral Lortab® 7.5 every 4 h. She tolerated her meals,
operative pain was managed with oral Lortab® 7.5 every 4 hours. The appendix measured 5.4 cm in length and revealed chronic peritonitis. The patient was admitted following a local anaesthetic block. The appendix and mesoappendix were irrigated with 1% Lidocaine and removed through a 12 mm trocar using a staple gun. The patient remained comfortable and conversed with us during the entire procedure.

Case report 2
A 26 year old nulliparous woman was admitted for microlaparoscopic evaluation of chronic pelvic pain under local anaesthesia with conscious sedation. The patient was treated medically with oral contraceptives and non-steroidal anti-inflammatory medications over a 5 year period for pelvic pain and dysmenorrhea with initial success. Her symptoms progressively worsened during the 8 months prior to surgery. Urinalysis and pregnancy tests were negative. White cell count was 9.6 with a normal differential. She weighed 61.4 kg, vital signs were stable and she was afebrile. She had no symptoms consistent with a viral syndrome or pelvic inflammatory disease. Preoperatively she received 2 mg of midazolam intravenously for conscious sedation. Fentanyl citrate was administered intravenously and titrated to 900 µg during the entire procedure. After infiltrating the umbilicus with a 10 cc dose of 1% Lidocaine with epinephrine and sodium bicarbonate, a 2 mm trocar and Verres needle were inserted. The abdomen was insufflated with 2.5 l carbon dioxide and a 1.8 mm microlaparoscope inserted. A second local anaesthetic block was administered in the midline suprapubic region and a 2 mm trocar inserted into the pelvic cavity. Conscious pain mapping was performed revealing exquisite tenderness of the appendix. Fentanyl (1%) was applied to the endometriotic implants which were fulgurated using 2 mm cautery scissors. A 12 mm trocar was inserted into the left pelvic cavity following a local anaesthetic block. The appendix and mesoappendix were irrigated with 1% Lidocaine and removed through the 12 mm trocar using a staple gun. The patient remained comfortable and conversed with us during the entire procedure. The appendix measured 5.4 cm in length and revealed chronic fibrosing periappendicitis. The patient was admitted following surgery for 23 h observation without any complications. Postoperative pain was managed with oral Lortab® 7.5 every 4 hours. She tolerated her meals, was voiding and ambulating without difficulty at the time of discharge. At her 2 week postoperative visit, she reported resolution of her pelvic pain. She returned to all of her activities without limitation at 4 weeks post-operatively.

Discussion
To our knowledge, based on a MEDLINE search of the literature published from 1976 to 1997, these are the first case reports describing the microlaparoscopic removal of the appendix under local anaesthesia with conscious sedation following diagnosis of the abnormal appendices by conscious pain mapping. The appendix is a well-known source of chronic pelvic pain in women. The main reasons for its removal in these patients include the elimination of both undiagnosed incidental pathology in the appendix and of right lower quadrant pain from future diagnostic consideration. In the infertility patient, a misdiagnosed infected appendix can have disastrous consequences for human fertility.

Until recently, the results of grossly normal appendices were uncertain until the final pathology report was received (Almeida and Val-Gallas, 1997). On occasion, the diagnosis of appendiceal endometriosis is made in the pathology report and not intra-operatively (Abdalla and Rizk, 1998). With the recent introduction of conscious pain mapping, the appendix can be further evaluated during microlaparoscopy under local anaesthesia with conscious sedation via patient feedback of appendiceal pain elicited during surgery. In our first 50 cases, we reported 13 abnormal appendices in 50 patients undergoing conscious pain mapping. All 13 patients had exquisite tenderness to probing of the appendix and therefore underwent incidental appendectomy. Two appendices had endometriosis, one had focal acute appendicitis, two had fecaliths, three had lymphoid hyperplasia, one had fibrous obliteration of the appendiceal lumen and four had adhesions. Palter et al. (1995) described diagnosis of acute appendicitis using the technique of microlaparoscopy under local anaesthesia with conscious sedation.

Our patient’s chronic pelvic pain had not resolved despite conservative medical therapy with oral contraceptives and non-steroidal anti-inflammatory medications. Although neither patient exhibited signs of acute appendicitis, both had chronic pelvic pain which included symptoms in the right lower quadrant. Our protocol for microlaparoscopy under local anaesthesia with conscious sedation enabled us both to diagnose the presence of abnormal appendices in these patients and safely perform their appendectomy without the use of general anaesthesia.

The only technical limitation that we have encountered with microlaparoscopy is that in certain procedures, for example during appendectomies, laparoscopic assisted vaginal hysterectomies and laparoscopic salpingo-oophorectomies, a 12 mm trocar is necessary in order to remove the surgical specimen. We have noted that the second generation ‘gold’ series 2 mm 50 000 pixel microlaparoscopes (Minisite®; US Surgical Co., Norwalk, CT, USA and Microlap®; Imagyn Medical Inc., Laguna Niguel, CA, USA) produce an enhanced resolution and a 75 degree field of view comparable to a standard 10 mm laparoscope. There is a full complement of 2 mm microinstrumentation including scissors for electrosurgery. The benefit of performing microlaparoscopy versus traditional macrolaparoscopy is that the former allows for a more minimally invasive procedure with a shorter recovery time and decreased risk of adhesion formation. In selected cases, the entire surgical procedure can be performed under local anaesthesia with conscious sedation.

References


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