

Interpleural Analgesia for Acute Shingles Pain and Post Cholecystectomy Pain. A Case Report

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Abstract

We report a patient with acute post-cholecystectomy pain escorted by acute shingles pain localized on her right 4th -7th thoracic dermatomes. Intermittent interpleural analgesia with 0.5% bupivacaine with epinephrine 1:200 000 was used during six days. Acute postoperative pain and acute herpetic pain were relieved, and no postherpetic neuralgia was observed in the long-term follow-up period.

Resumen

Se describe una paciente con dolor agudo post colecistectomía y dolor agudo severo secundario a herpes zoster agudo en los dermatomas T4-T7 derechos. La enferma fue tratada con analgesia interpleural intermitente con bupivacaína 0.5% con epinefrina 1:200 000, durante seis días. Ambos dolores agudos remitieron en forma adecuada, y la paciente no desarrolló neuropatía postherpética en un año de seguimiento.

Case Report

Interpleural analgesia has been proved to be a useful method to relieve acute, chronic and cancer pain from T2 to T12 dermatomes. Frequently, it is use in upper abdominal surgery, particularly for post open cholecystectomy pain.^{1,2,3,4} It is also used to alleviate pain in situations such as post-thoracotomy pain⁵, after kidney surgery,⁶ to control acute pain in multiple ribs fractures,⁷ in thoracic acute herpes zoster,^{8,9,10,11,12} pancreatic pain due to chronic pancreatitis or pancreatic malignancies,^{13,14} etc.

We describe the use of intermittent interpleural analgesia with 0.5% bupivacaine to treat a patient with concomitance of acute severe shingles pain and post-cholecystectomy pain. A 63 year-old Hispanic woman, with a history of chronic pain localized on her right upper abdominal quadrant, secondary to known chronic cholelithiasis was seen by her surgeon during an acute pain episode. On emergency ward, the patient main grievance was severe acute pain during the last two days, localized on her right upper abdominal quadrant. She was nauseous, and vomiting. She also was complaining of a right chest acute pain, of seven days duration. This sec-

ond pain was described as sharp, burning, almost constant, intense, described on a visual analogue scale (VAS) as 8 to 9/10, confined to right dermatomes T4-T7, with no response to common analgesics drugs. On physical examination she was restless, blood pressure 130/90 mm Hg, heart rate 90 per min, respiratory rate 24 per min, temperature 38 o Celsius, weight 69 kg, height 156 cm. The most remarkable findings were several red vesicles and blebs distributed as a band on her 4 th – 7 th right dermatomes. This area was painful to light touch, with several patchy zones of anesthesia and disesthesia. In addition, her upper right abdominal quadrant was very tender, with a positive Murphy's sign. The blood count showed a neutrophilic leucocytosis. Liver function, seric electrolytes and coagulation test were normal. An EKG and chest x-ray were between normal ranges. An abdominal ultrasound showed a single stone obstructing the cystic duct. Diagnosis of chronic cholelithiasis in acute episode, and acute thoracic herpes zoster were made. An open cholecistectomy was performed under general anesthesia with isoflurane-nitrous oxide with no incidents during surgery. Before extubation, the patient was placed in left lateral position. After the superior border of the right 6 th rib was identified, and the area prepped with iodine, a 16-gauge epidural catheter was introduced 8 cm. into the interpleural space, following the technique described by Reiestad and coworkers. 20 mL of 0.5% bupivacaine with epinephrine 1:200 000 were injected and the patient was awaked from general anesthesia. Further dose of 30 mL of 0.5% bupivacaine with epinephrine 1:200 000 were injected through the interpleural catheter every 6 hours during the next six days. Ketorolac tromethamine 30 mg was prescribed every 6-8 hours as requested for breakthrough pain. A chest x-ray done on the first postoperative day, showed the epidural catheter placed interpleural, and no pneumothorax was noticed (figure 1 y 2).



Figure 1. Acute herpes zoster from T4 to T7 right dermatomes. The interpleural catheter is taped.

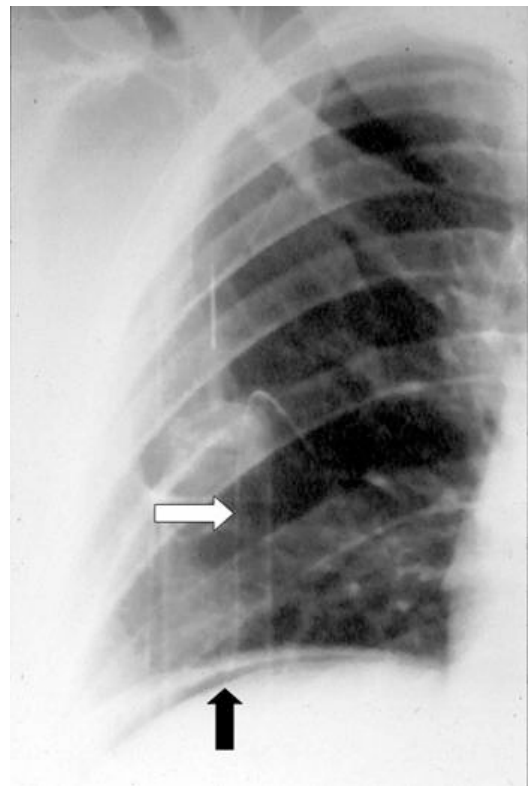


Figure 2. Plain chest x ray. The white arrow shows the interpleural catheter entering above the superior border of the 6 th right rib. The black arrow point out post operative air in the abdominal cavity.

Patient was 90% to 100% pain free; she had neither herpetic pain nor post-operative pain during the intervals of interpleural injections. She required no rescue analgesics. Her post-operative evolution was normal and she was released from hospital on the sixth post-surgical day. Interpleural catheter was removed before discharged. A short office visit by her surgeon showed no post-herpetic pain, and 12 months later she remained pain free.

Discussion

Since the first report twenty years ago by Kvalheim and Reiestad,^{1,2} many investigations have proved the benefits of the interpleural injection of local anesthetics to treat pain (2-12), although some researchers have mentioned that interpleural analgesia is not such a safe and useful method to alleviate pain.^{15,16} The mechanism of action of interpleural local anesthetics remains hypothetical, although there are several theories to explain it. It has been demonstrated that substances like methylene blue or china ink, injected within the interpleural space spreads through the thin parietal pleura toward the sympathetic thoracic ganglia, localized in the paravertebral region, besides penetrating the subcostal space, where the intercostals nerves are sited.^{17,18} In fact, it is possible to develop a Horner's syndrome after interpleural injection of local anesthetics due to transpleural spread into the stellate ganglion.^{19,20} Ramajoli and DeAmici²¹ found evidence of

bilateral sympathetic and splanchnic nerves block after interpleural injection of 20 mL of 0.5% or 0.25% bupivacaine. There is no doubt that interpleural analgesia blocks the acute pain due to open cholecystectomy^{1,2,3} and others acute, chronic and even cancer pain conditions in the upper abdomen, neck, upper arms and chest. On the other hand, it is well known that postherpetic neuralgia is a common devastating source of intractable chronic pain in persons over 60 years old.^{22,23} Nowadays, there are many ways to deal with those persons who suffer postherpetic pain. Some treatments claims to be scientifically proved, some others are empirical. Although sympathetic nerve blocks have been questioned on their usefulness to prevent postherpetic neuralgia,²⁴ most pain clinicians use them to treat pain during the acute phase of shingles. Early continuous or repeated sympathetic nerve blocks might decrease the possibility to develop postherpetic neuralgia. As many researchers, it is our believe that earlier sympathetic nerve blocks play an important role in both instances; to cure acute pain secondary to acute shingles, and to avoid postherpetic neuralgia, particularly in those persons over 60 years old, or younger patients but with immune diseases.^{25,26,27}

In 1990, Reiestad et al.²⁸ were the first to publish their results with interpleural analgesia using 0.5% bupivacaine with epinephrine 1:200 000 to treat acute and subacute severe pain in patients with thoracic herpes zoster. None of 18 patients developed postherpetic neuralgia. Their findings have been confirmed by others groups. We have used interpleural bupivacaine^{10,11,12} and ropivacaine to treat persons with severe chest pain due to acute zoster, with immediate pain control. No one developed postherpetic neuralgia. One patient had complications due to intrapulmonary accidental injection of bupivacaine.¹²

In order to block the sympathetic pain pathway, it is necessary to use low concentration of local anesthetics (bupivacaine or ropivacaine 0.6 to 0.25%, lidocaine 0.5%). To block the intercostal nerves (which carries the somatic component of open post-cholecystectomy pain) it is mandatory to use higher concentration of local anesthetics (bupivacaine or ropivacaine 0.5% to 0.75%, lidocaine 1% to 2%) to achieve excellent postoperative analgesia. Interpleural injection of 0.5% bupivacaine in our patient resulted in postoperative pain relieve, as well as treatment for the acute chest herpetic pain. In addition, we think that having our patient receiving intermittent injections of local anesthetic for 6 days, was long enough to prevent postherpetic pain. There is no agreement on the period of time to keep the interpleural catheter; Reinstad and co-workers recommended 12 days, we keep the catheter in place from 5 to 12 days. In cancer pain patients, interpleural analgesia had been used for longer periods of time.²⁹

In conclusion, to our knowledge, this is the first published

case with acute post cholecystectomy pain and thoracic acute herpetic pain, which was properly treated using only interpleural bupivacaine with adrenaline. We were able to block the deleterious body response to postoperative pain avoiding complications such as atelectasis, prolonged ileus, pulmonary infections, vein thrombosis, etc. In addition, interpleural analgesia treated acute shingles pain, and prevented postherpetic neuralgia and all its devastating effects. In the infrequent event of acute right chest shingles and postoperative pain due to open cholecystectomy, we strongly suggest the use of interpleural analgesia.

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