

Point of Technique

Videoscopic retroperitoneal lumbar sympathectomy for selected cases: a new technique

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Introduction

Minimally invasive techniques are becoming popular choice for the recent times. These techniques are lowering the cost and giving the best cosmetic results. For cardiovascular surgery these techniques are much more newer and much more unknown. Open lumbar sympathectomy for certain indications is a very well known treatment option. But videoendoscopic procedures are very uncommon for cardiovascular surgeons. We performed bilateral lumbar sympathectomy in 2 patients i frostbitten and ii infected hyperhidrosis. Both patients were discharged at the third postoperative day without complications. Videoendoscopic surgery in the retroperitoneal space is a safe and suitable operative technique for both the patient and the surgeon. Videoendoscopy is increasingly becoming popular in step with the recent advances in all aspects of surgery . The most commonly sited disadvantage of this technique compared to conventional technique, is the long learning curve necessary for the surgeon to become proficient. Initially surgeons hesitated at performing videoendoscopic surgery, but advancing technology has created very excellent horizons. Routine lumbar sympathectomy is a very common operative procedure for selected indications. Ischemic peripheral arterial diseases, frostbite, cold sensitivity are among these indication for lumbar sympathectomy. Cardiovascular surgeons most commonly prefer open conventional procedures transperitonally. Videoendoscopic lumbar sympathectomy

was done via the retroperitoneal approach. Material And Method Between January 2001-March 2002 we operated two patients in collaboration with the general surgeons. One of the patients was frostbitten complaining of cold sensitivity and the other case had hyperhidrosis with both feet septic. For both patients videoendoscopic lumbar sympathectomy was performed retroperitoneally and successfully..

Case 1:

A twenty one year old man was frostbitten 45 days before attending our clinic. In both feet, the distal phalanxes were partially covered by gangrenous plaques and his main complaint was severe cold sensitivity. History, physical examination all laboratory findings were normal except the above findings.

Case 2:

Twenty years old male patient attended dermatology clinic for serious feet eczema which resulted from severe sweating. Both feet were infected and there was an unpleasant smell from his feet. He been treated for contact dermatitis with significant but temporary relief of symptoms and rapid recurrence. Both patients were operated under general anesthesia with supine position and there were no need for lateral decubitus positions which was very commonly chosen by most surgeons. Through a skin incision which extends 2 cm medially from the left anterior-superior iliac spine

Subcutaneous tissue and muscle layers were spread by blunt dissection until the preperitoneal area just superior to the psoas muscle. Then a 10 mm trocar (Endo trocar 5 mm, 10 mm, Ethicon Endo Surgery Inc. Cincinnati OH, USA) was inserted from this incision. After exploration of the peritoneum, a dissection balloon (Preperitoneal Dissector Balloon 10 mm Auto-Suture Endo Surgery Inc. Norwalk-Connecticut USA), widely used by general surgeons for retroperitoneal hernia repair was inserted into the retroperitoneal space developing it. Then a structural balloon was inserted for retraction of the peritoneum (Structural Balloon 10mm Auto-Suture Endo Surgery Inc. Norwalk-Connecticut USA). The retroperitoneum was insufflated with carbon dioxide 12 mmHg pressure. Then the operation field was created. By blunt dissection with the tip of the videoendoscope the Aorta, left ureter, psoas muscle, processes of the vertebral spines and the sympathetic chain were identified (Fig-1, Fig-2, Fig-3). Aorta was retracted a little bit medially to provide an excellent exposure. Then under

direct vision through the videoendoscope, two 5mm trocars 2 cm apart from each other were inserted and each was about 2-3 cm lateral to the 10 mm trocar. By the help of a grasper (Grasper 5 mm Ethicon Endo-Surgery Inc. Cincinnati OH USA) and a dissector (Endodissect 5 mm Auto Suture Inc. Norwalk, Connecticut USA), L2-3 sympathetic ganglia were dissected. Both ends of the sympathetic chain were clipped and then excised. The sympathetic chain was confirmed by frozen section and then retroperitoneum was desufflated and all trocars were removed following hemostasis. The subcutaneous tissue was sutured only at the insertion side of the 10 mm trocar, the other two port sites were sutured cutaneously. Similar operative procedure was performed for the right side, but inferior vena cava was retracted medially to a greater extent than was aorta in the previous procedure. Total duration of operation was 40 minutes. We used no drains. Both patients stayed only two hours in the ICU and were mobilised at the 4th postoperative hour. Both patients were discharged at the third postoperative day without any complication Figure 4.

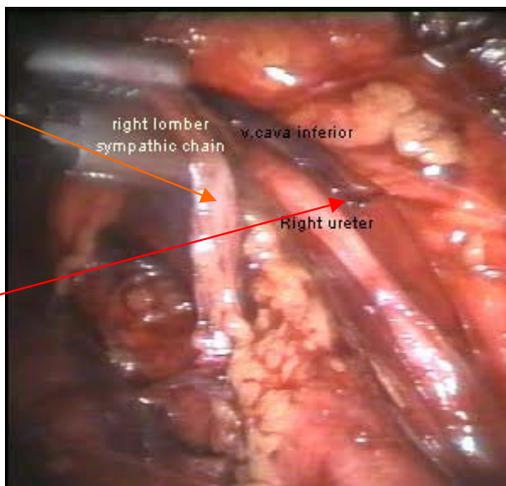


Fig2 Right lumbar chain sympathetic chain. sympathectomy

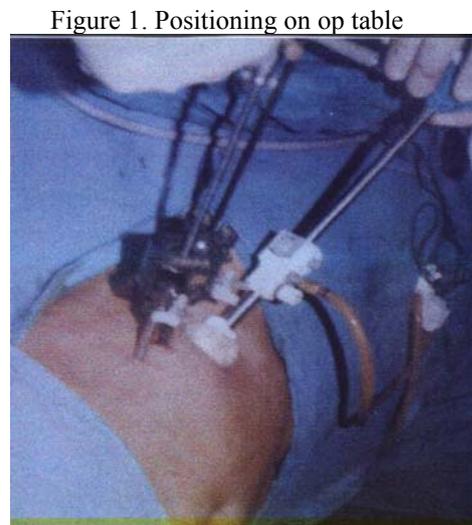
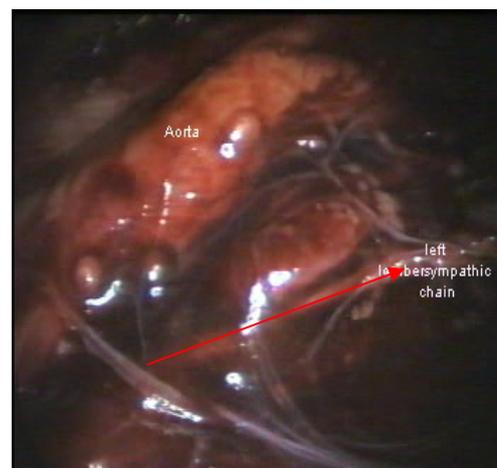


Figure 1. Positioning on op table



Fig 4 Patient at discharge

Fig3 left lumbar sympathectomy



Discussion

Frostbite, once almost exclusively a military problem, is becoming more prevalent among the general population and should now be considered within the scope of the civilian physician's practice (1). Overproduction of sweat by the exocrine sweat glands is called hyperhidrosis. (2) Primary hyperhidrosis is a troublesome disorder of excessive perspiration that affects as much as 1 percent of the population³. There are many treatment options for hyperhidrosis⁴. Surgical treatment does bring about a long-term resolution of the problem, but must be considered in well-justified cases as it is an invasive procedure (2). As conventional lumbar sympathectomy is a very invasive surgical procedure, less invasive procedures are becoming the first treatment options and choice of the patient. Videoendoscopic retroperitoneal lumbar sympathectomy is quite uncommon procedure for cardiovascular surgeons. In a few selected cases, lumbar sympathectomy is efficient and excellent when patient comfort, cosmetic results and cost-effectiveness are considered. Biedermann and his friends performed videoendoscopic retroperitoneal lumbar sympathectomy for 6 cases and concluded that; this technique has several disadvantages for the surgeon, but less strain and early rehabilitation are a definite advantage for the patient⁵. Also Lacroix operated 40 patients, 21 open and 19 videoendoscopically and he found that

there was superiority of the videoendoscopic procedure except the disadvantages of the lumbotomy⁶. However late in 1995 and early 1996 many authors published many articles in which they stated the safety, comfort and cost effectiveness of the videoendoscopic retroperitoneal lumbar sympathectomy. Wattanasirichaigoon operated a patient for Buerger's disease and observed that videoendoscopic technique opens perspectives for the exploration of the entire retroperitoneum, it's safer and should be the choice of the future surgeon⁷. Kala compared surgical and chemical sympathectomy and he concluded that retroperitoneoscopic lumbar sympathectomy is well tolerated by patients⁸. During the operation some authors insist that a histologic evaluation must be done especially at the learning curve period⁹¹⁰. We also send the resected ganglia for frozen section in order to be sure of the procedure. Nies underlined the importance of the placement of the first trocar in order to be aware of the full operative field. And he said that overview is worse than in conventional surgery because of the magnifying effect of the laparoscope¹¹. We placed the 10 mm trocar just 1 cm superior and medial

to the anterior superior iliac spine and the operation field was very clear. Also in our opinion magnifying effect was an advantage for the orientation, because we even saw the motion of the ureter which is very difficult to identify during the conventional operations. Seror operated 5 patients for different indications by videoendoscopic retroperitoneal route and his mean operation time was 120 minutes, there were no complications and he discharged the patients at second postoperative day¹². Avrahami operated 8 cadavers and his mean operation time was 40 minutes only for one side¹³. The most important complication was the perforation of the peritoneum and air leakage to the abdomen^{13,14}. Our mean operation time for whole operation (for two sided sympathectomy) was 40 minutes and we had no complication peroperatively and our mean hospitalization time was 4 days. Indeed it was possible to discharge the patients at the same day. Debings operated 23 cases and in one case he converted to open

surgery, mean hospitalization time was 4 days¹⁵. Beglaibter performed 27 retroperitoneoscopic lumbar sympathectomy and mean operation time was 136 minutes and mean hospitalization time was 1.4 days.¹⁶ We operated both cases as it was planned videoendoscopically and our hospitalization period was similar. Nicolas performed 117 Videoendoscopic retroperitoneal lumbar sympathectomy and summarised that ; 'our experience proved that lumbar endoscopic sympathectomy is a safe and effective treatment for plantar hyperhidrosis'¹⁶. Videoendoscopic retroperitoneal lumbar sympathectomy successfully combines the advantages of minimally invasive surgery with the effectiveness of the open procedure. More clinical experience and long-term follow-up will ultimately determine if this will become the procedure of choice. However, we believe that a learning period is necessary for this technique to be fully mastered

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