Annales de chirurgie plastique esthétique (2016) xxx, xxx—xxx

Available online at
ScienceDirect
www.sciencedirect.com

Elsevier Masson France
EM|consulte
www.em-consulte.com

NOTE TECHNIQUE

Technical feasibility of robot-assisted minimally-invasive neurolysis of the lateral cutaneous nerve of thigh: About a case

Neurolyse du nerf cutané latéral de la cuisse par voie mini-invasive robot-assistée : faisabilité technique à propos d'un cas

A. Bruyere, J.J. Hidalgo Diaz, P. Vernet, S. Salazar Botero, S. Facca, P.-A. Liverneaux*

Department of Hand Surgery, SOS main, CCOM, University Hospital of Strasbourg, FMTS, University of Strasbourg, Icube CNRS 7357, 10, avenue Baumann, 67400 Illkirch, France

Received 19 March 2016; accepted 10 April 2016

KEYWORDS
Meralgia paresthetica;
Minimally-invasive surgery;
Neurapraxia;
Neurectomy;
Neurolysis;
Da Vinci robot;
Lateral cutaneous nerve of thigh

Summary To limit the risk of iatrogenic neuroma and recurrence after surgical treatment of meralgia paresthetica, some authors have recently developed a technique of endoscopic neurolysis of the lateral cutaneous nerve of thigh (LCNT) below the level of the inguinal ligament. We report the case of a robot-assisted endoscopic technique underneath the inguinal ligament. A 62-year-old patient suffering of idiopathic meralgia paresthetica for the past 18 months received a Da Vinci robot-assisted minimally-invasive 10 cm long neurolysis, of which 1/3 was situated above the level of the inguinal ligament and 2/3 below it. The patient was discharged the following day without complications. At 6-months follow-up the pain was rated 0/10 compared to 5/10 pre-operatively. Robot-assisted endoscopic neurolysis of the LCNT retains the advantages of conventional endoscopy and enables to approach the nerve in the most frequently compressed zone underneath the inguinal ligament. The three-dimensional view offered by robotic surgery facilitates the dissection. The superiority of this technique remains to be demonstrated by comparing it to conventional techniques.

* Corresponding author.
E-mail address: Philippe.liverneaux@chru-strasbourg.fr (P.A. Liverneaux).

http://dx.doi.org/10.1016/j.anplas.2016.04.004

Please cite this article in press as: Bruyere A, et al. Technical feasibility of robot-assisted minimally-invasive neurolysis of the lateral cutaneous nerve of thigh: About a case. Ann Chir Plast Esthet (2016), http://dx.doi.org/10.1016/j.anplas.2016.04.004

MOTS CLÉS
Méralgie paresthésique ;
Chirurgie mini-invasive ;
Neurapraxie ;
Neurectomie ;
Neurolyse ;
Robot Da Vinci ;
Nerf cutané latéral de la cuisse

Résumé Pour limiter les risques de névrome iatrogène ou de récidive après traitement chirurgical des méralgies paresthésiques, certains auteurs ont récemment développé une neurolyse du nerf cutané latéral de la cuisse (NCLC) sous endoscopie en aval du ligament inguinal. Nous rapportons ici une technique endoscopique robot-assistée au niveau du ligament inguinal. Un patient de 62 ans souffrant d'une méralgie paresthésique gauche idiopathique évoluant depuis 18 mois a été opéré d'une neurolyse par voie mini-invasive avec un robot Da Vinci sur environ 10 cm dont un tiers en amont et deux tiers sous le ligament inguinal Le patient est sorti le lendemain de l'intervention sans complication. Au recul de 6 mois, la douleur a été cotée à 0/10 pour une évaluation à 5/10 en pré-opératoire. La neurolyse endoscopique robot-assistée du NCLC conserve les avantages de l'endoscopie et permet d'aborder le nerf dans la zone la plus fréquente de compression, au niveau du ligament inguinal. La vision tridimensionnelle donnée par la robotique facilite la dissection. Il reste à démontrer la supériorité de cette technique en la comparant aux techniques conventionnelles.

Introduction

Lesions of the lateral cutaneous nerve of thigh (LCNT) or meralgia paresthetica are rare, with only 4,3 new cases a year in 10,000 individuals [1], and bilateral in 20% of cases [2,3]. They can either be idiopathic or iatrogenic [4]. When they become invalidating, especially when they result in neuropathic pains and/or paresthesia of the anterolateral side of the thigh and knee, a medical treatment can be tried. In case of failure, a surgical treatment can be indicated either by neurolysis [5], nervous transposition [6], or by neurectomy [4,7]. All these techniques present the inconvenience of performing a surgical approach directly on the pathway of the nerve with a risk of recurrence [8].

In order to limit this risk, some authors have recently described a technique of minimally-invasive endoscopy using the same surgical approach as for the inguinal hernia surgery [9]. This surgical approach enables the neurolysis of the LCNT below the level of the inguinal ligament whereas the compression usually takes place above it [3].

We report the case of a patient treated for meralgia paresthetica by neurolysis of the LCNT using a robot-assisted endoscopic technique.

Patient and technique

A 62-year-old male patient with a 26.5 body mass index consulted for a case of left meralgia paresthetica evolving for the last 18 months. Besides a history of left total hip arthroplasty 19 years before, without complication, no other causing factor was found, particularly no trauma, no local compression, no diabetes. The clinical picture showed a numbing pain rated at 5/10 on a numeric scale located at the anterior side of the left thigh, hypoesthesia of the anteromedial and anterolateral sides of the left thigh. The percussion of a trigger zone reproduced this pain. The diagnosis was confirmed by an electromyogram showing the absence of sensitive potentials of the left LCNT without radicular damage. The MRI was normal and showed no tumor affecting the LCNT. The medical treatment included non-steroid anti-inflammatory per os and sustained-release corticosteroid shots in the inguinal ligament was only effective on the pain, and only so for a month. A surgical treatment was decided in regard of the lack of improvement under medical treatment.

The procedure consisted in an extraperitoneal neurolysis of the LCNT using a robot-assisted minimally-invasive technique. Under general anesthesia, the patient was installed in dorsal decubitus with a cushion under the right buttock. Four incisions, each 1 cm long, were performed on the left lower quadrant of the abdomen to receive the converging trocars in a working chamber created by dissection with scissors (Fig. 1). A Da Vinci robot SI® (Intuitive Surgical™, Sunnyvale, CA, USA) was set up with 3 instruments (Maryland forceps and bipolar scissors) switched during the procedure (Fig. 2). A carbon dioxide insufflation was used to maintain an expanded surgical chamber (Fig. 3). A 10 cm long release of the LCNT was performed, 1/3 of this length above the level of the inguinal ligament, 2/3 below it (Fig. 4). The surgical dissection was done progressively, plane by plane (video 1). The patient was released the next day without complication. After a 6-month follow-up (Fig. 5) the pain was rated 0/10. A slight hypoesthesia of the anteromedial and anterolateral sides of the left thigh remained.

Discussion

On an anatomic level, three zones of compression, iatrogenic or idiopathic, have been described: retroperitoneal, underneath the inguinal ligament and below the level of the inguinal ligament. Retroperitoneal compressions are rare. They are either due to a compressive tumor process or to an iatrogenic lesion [3]. Compressions at the level of the inguinal ligament are the most frequently encountered. They can be idiopathic and contributing factors have been described: pregnancy, obesity, ascites, diabetes, overly tight clothes, secondary to traumatic causes, or iatrogenic [4]. Because of the existence of anatomical variances, the location of the compressed zone may vary, ranging from behind the anterior superior iliac spine (ASIS) to inside, close to the femoral branch of the genitofemoral nerve [6,10]. Compressions below the level of the inguinal ligament, above the Sartorius muscle where the LCNT divides into an anterior branch and a posterior branch [11] are rare [12]. Even though the patient benefited form a total hip arthroplasty 19 years before, his case should be considered of idiopathic compressive etiology, just inside of the ASIS.

Please cite this article in press as: Bruyere A, et al. Technical feasibility of robot-assisted minimally-invasive neurolysis of the lateral cutaneous nerve of thigh: About a case. Ann Chir Plast Esthet (2016), http://dx.doi.org/10.1016/j.anplas.2016.04.004