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Education in anesthesia

Regional anesthesia guided by ultrasound in the pudendal nerve territory[☆]

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ABSTRACT

Introduction: Pudendal nerve blocks have a wide range of clinical applications for the management of acute post-operative pain in urologic, gynecological surgery, in coloproctology, as well as in pain medicine for differential diagnosis, and for the management of pudendal neuropathies. However, despite its benefits it is infrequently used.

Objective: To perform a detailed description of the most recent ultrasound-guided techniques with the aim of encouraging safe and reproducible learning.

Materials and methods: We have performed a broad, non-systematic review of the literature through Medline, Embase and Science Direct between 1985 and 2016, to evaluate the most relevant articles, using the following key words: pudendal nerve anatomy, pudendal nerve, pudendal nerve blocks, pudendal nerve ultrasound, pudendal neuralgia, nerve entrapment, chronic pain, Alcock canal, and pelvic pain. The search was limited to articles published in Spanish, English and French.

Results: Recent descriptions were found of a large number of anatomic variants, which are described in detail and shown in graphic documents in order to facilitate the sonoanatomic correlation of nerve location as a guide for the performance of the pudendal nerve block through the different approaches.

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Conclusions: The deep and detailed knowledge of the anatomy of the pudendal nerve and its variations is essential for the realization of Regional Anesthesia techniques guided by images. These promising techniques should continue to be evaluated with clinical studies.

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Anestesia regional guiada por ultrasonido en territorio del nervio pudendo

R E S U M E N

Palabras clave:

Ultrasonografía
Ultrasonografía intervencional
Nervio pudendo
Anestesia de conducción
Bloqueo nervioso

Introducción: Los bloqueos del nervio pudendo poseen un amplio rango de utilidades clínicas en el manejo agudo de dolor POP en cirugía urológica, ginecológica, en coloproctología así como en Medicina del dolor en diagnóstico diferencial y manejo de las neuropatías del nervio pudendo. Sin embargo su aplicación es relativamente infrecuente a pesar de los beneficios. **Objetivo:** Realizar una descripción detallada de las técnicas más recientes guiadas por ultrasonografía con el objeto de motivar su aprendizaje de una manera segura y reproducible.

Materiales y métodos: Se realizó una revisión amplia, no sistemática de la literatura a través de Medline, Embase y Science Direct desde 1985 hasta 2016, evaluando los artículos más relevantes, utilizando las palabras clave: anatomía del nervio pudendo, nervio pudendo, bloqueos del nervio pudendo, ultrasonido del nervio pudendo, neuralgia del pudendo, atrapamiento nervioso, dolor crónico, canal de Alcock y dolor pélvico. La búsqueda se limitó a artículos publicados en español, inglés y francés.

Resultados: Se encontraron recientes descripciones de una gran cantidad de variantes anatómica, que se describen en detalle y muestran en documentos gráficos con el propósito de facilitar la correlación sonoanatómica de la localización del nervio como guía para la realización de bloqueos de nervio pudendo a través de los diferentes abordajes.

Conclusiones: El conocimiento profundo y detallado de la anatomía del nervio pudendo y sus variaciones es esencial para la realización de técnicas de anestesia regional guiada por imágenes.

Estas técnicas promisorias deben continuar evaluándose con estudios clínicos.

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Introduction

Pudendal nerve blocks have a wide range of clinical applications^{1,2} that involve anaesthetic/analgesic goals: haemorrhoid,³⁻⁶ ano-rectal, vaginal, and perineal⁷ surgery; labour,⁸ episiotomies,^{9,10} prostate biopsy,¹¹ prostate brachytherapy,¹² interstitial cystitis,¹³ and penile surgery.¹⁴ Moreover it is an integral part of the diagnosis and therapy of pudendal neuropathy of which little is known, although there is growing research into its pathophysiology and therapeutic approaches.^{2,14-20}

Despite the above, pudendal nerve blocks are not a popular technique in daily practice in general, urologic or obstetric surgery, perhaps because of lack of knowledge of the block or because of the frequency of blind blocks with variable or incomplete results.⁸ At present, with the popularity of ultrasound-guided blocks²¹⁻³² it is important to review the anatomy, sonoanatomy and some relevant technical aspects that may make its implementation a safe and reproducible practice.

Objective

Pudendal nerve blocks are an option to consider in certain urologic, gynaecologic and coloproctology procedures and, more recently, also in the pain clinic, thanks to the growing development of ultrasound as a neurolocalisation technique. The objective of this study was to review the indications and techniques for pudendal blocks, taking into account recent detailed descriptions of the complexity and anatomic variants of the pudendal nerve as determining factors for success with the block, and for the education process required to disseminate the benefits.

Pudendal nerve anatomy

The pudendal nerve is the main nerve of the perineum,³³ the pelvic floor muscles^{18,34} and the external sexual organs. It was described by Benjamin Alcock in 1836 as he studied the course of the internal pudendal artery³⁵⁻³⁷; since that time,

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