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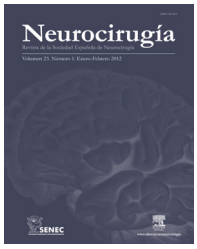

Review

Microscopic versus endoscopic pituitary surgery

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ABSTRACT

Introduction and objective: The endoscopic techniques used in pituitary surgery have evolved greatly in recent years. Our objective in this study was to conduct a review of the systematic reviews published in the English language literature, to examine their consistency and conclusions reached following studies comparing microsurgery and endoscopic surgery in hypophyseal surgery.

Materials and methods: We carried out a bibliographic search on MEDLINE and EMBASE electronic databases, selecting those systematic reviews and meta-analyses published from the year 2000 until January 2013, focusing on comparisons between microsurgical and endoscopic techniques.

Results: We concluded with type A consistency that hospital stay was shorter and diabetes insipidus and rhinological complications were less frequent in the endoscopy group. We concluded with type B consistency that lower rates of patient blood loss, shorter operative times, higher rate of gross total resection, lesser association to visual impairment and lower rate of hypopituitarism were observed in the endoscopy group. Vascular complications and cerebrospinal fluid fistulas were reduced with microsurgery. It is crucial to perform a combined analysis of all the systematic reviews treating a specific topic, observing and analysing the trends and how these are affected by new contributions.

Conclusion: Randomized multicenter studies are necessary to resolve the controversy over endoscopic and microsurgical approaches in hypophyseal pathology.

Cirugía hipofisaria microscópica versus endoscópica

Palabras clave:
Adenoma hipofisario
Cirugía microscópica

RESUMEN

Introducción y objetivo: Las técnicas endoscópicas aplicadas a la cirugía hipofisaria han experimentado un importante desarrollo en los últimos años. Nuestro objetivo es realizar un examen de las diferentes revisiones sistemáticas publicadas en la literatura inglesa, para

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Cirugía endoscópica

determinar la consistencia y las conclusiones alcanzadas tras la comparativa entre abordajes endoscópicos y microscópicos en la cirugía hipofisaria.

Material y métodos: Se ha realizado una revisión de la literatura inglesa utilizando las bases de datos MEDLINE y EMBASE, seleccionando las revisiones sistemáticas y metaanálisis publicados desde el año 2000 al 2013, focalizándonos en la comparativa entre los abordajes endoscópicos y microscópicos para el tratamiento de patología hipofisaria.

Resultados: Concluimos con consistencia tipo A que la estancia hospitalaria fue más corta, así como la diabetes insípida y las complicaciones rinológicas fueron menos frecuentes en el grupo endoscópico. Encontramos consistencia tipo B a favor de que la pérdida hemática es menor, el tiempo quirúrgico es más corto, la tasa de resección completa es mayor, el deterioro visual es menos frecuente y la tasa de hipopituitarismo es menor en el grupo endoscópico. Las complicaciones vasculares y la fístula de LCR fueron menos frecuentes en el grupo microscópico con consistencia tipo B. Resulta fundamental realizar un análisis combinado de todas las revisiones sistemáticas que tratan un tema específico, observando y analizando las tendencias y cómo estas se pueden ver afectadas por las nuevas contribuciones.

Conclusiones: Estudios aleatorizados multicéntricos son necesarios para resolver la controversia entre el tratamiento endoscópico y microscópico de la patología hipofisaria.

The endoscopic techniques used in skull base and pituitary surgery have evolved greatly in recent years, as well as in our academic circle,[1–3] propelled by technology advances. Evidence-based medicine demands a firm foundation of practical experience to provide a sufficiently broad sample size to detect differences between new and classical techniques. Thus it is imperative to conduct studies with high evidentiary value as well as meta-analysis and systematic reviews to confirm the soundness of new endoscopic advances. Our objective in this study was to conduct a review of published English language literature systematic reviews (SRs), to examine consistency of their results and conclusions reached on studies comparing microsurgery and endoscopic surgery in hypophyseal surgery.

Materials and methods

We conducted a SR of the English language literature from the year 2000 until January 2013. We carried out a bibliographic search on MEDLINE and EMBASE electronic databases selecting those systematic reviews and meta-analyses published over a thirteen-year period on hypophyseal surgery, focusing on microsurgical and endoscopic technique comparisons. Search terms used were: systematic review, meta-analyses, endoscopy, endonasal, microscopy, pituitary adenoma and pituitary surgery. Additionally, extensive hand searching of the references for all relevant studies was performed. From these search results two reviewers selected studies that dealt with treatment of hypophyseal adenomas. PRISMA checklists were used and fulfilled. The inclusion criteria were systematic reviews and meta-analyses focusing on microsurgical and endoscopic technique comparisons for pituitary adenomas, with at least one variable considered with respect to the outcome or complication assessment (length of hospital stay, diabetes insipidus, intraoperative blood loss, operative time, gross total remove, anterior hypopitutarism, visual impairment, CSF leak, vascular, rinhological or infectious complications, death). Exclusion criteria were: review with no available direct comparison between the endoscopic and microscopic procedures and review focused on only one type of adenoma (giant, non functional or functional adenomas). Included studies were assessed indicating the quality of methodology used in the study. Levels of evidence were defined using commonly accepted standards in the literature, as follows: randomized controlled trials (level 1), prospective or retrospective cohort studies and poor quality randomized controlled trials (level 2), case control studies (level 3), case series or observational studies (level 4), and case reports and expert opinion (level 5) (Table 1). After analyzing the studies, we identified several levels of consistency among the reviews defined in Table 2, depending on their statistical significance and the homogeneity of their results.

Results

Six comparative reviews met these inclusion criteria, but in the oldest, published in 2009 by Tabaee et al.[4] only 3 studies used control groups, which were very heterogenous, making it impossible to perform comparative analysis between the two techniques, and in the Komotar et al.[5] review, published in 2012, only the giant pituitary adenomas were had in account, thus both these two reviews were excluded (Fig. 1). Finally, only four reviews[6–9] met the inclusion criteria, directly comparing microsurgery and endoscopic surgery. Below is our detailed discussion along the following dimensions:

General data and time perspective

In 2010 Rotenberg et al.[6] published the first systematic review of English language publications up to June 2009, selecting studies that directly compared research on microsurgery versus endoscopy and excluding low-evidence studies. 11 studies met the inclusion and exclusion criteria.[10–20] The endoscopic approach decreased operating time, lumbar drains,

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