Transsphenoidal approach complications

For a transsphenoidal approach, no significant differences in surgical outcomes, mortality during the perioperative period or complications were observed between patients younger than 14 years old and similar patients in the general population 1).

Microsurgical and endoscopic techniques are commonly utilized surgical approaches to pituitary pathologies. There are limited data comparing these 2 procedures.

To evaluate postoperative complications, associated costs, and national and regional trends of microscopic and endoscopic techniques in the United States employing a nationwide database.

The Truven MarketScan database 2010 to 2014 was queried and Current Procedural Terminology codes identified patients that underwent microscopic and/or endoscopic transsphenoidal pituitary surgery. International Classification of Diseases codes identified postoperative complications. Adjusted logistic regression and matched propensity analysis evaluated independent odds for complications.

Among 5886 cases studied, 54.49% were microscopic and 45.51% endoscopic. The commonest surgical indications were benign pituitary tumors. Annual trends showed increasing utilization of endoscopic techniques vs microscopic procedures. Postoperative complications occurred in 40.04% of cases, including diabetes insipidus (DI; 16.90%), syndrome of inappropriate antidiuretic hormone (SIADH; 2.02%), iatrogenic hypopituitarism (1.36%), fluid/electrolyte abnormalities (hypoosmolality/hyponatraemia [5.03%] and hyperosmolality/hypernatraemia [2.48%]), and cerebrospinal fluid (CSF) leaks (CSF rhinorrhoea [4.42%] and other CSF leak [6.52%]). In our propensity-based model, patients that underwent endoscopic surgery were more likely to develop DI (odds ratio [OR] = 1.48; 95% confidence interval [CI] = 1.28-1.72), SIADH (OR = 1.53; 95% CI = 1.04-2.24), hypoosmolality/hyponatraemia (OR = 1.17; 95% CI = 1.01-1.34), CSF rhinorrhoea (OR = 2.48; 95% CI = 1.88-3.28), other CSF leak (OR = 1.59; 95% CI = 1.28-1.98), altered mental status (OR = 1.46; 95% CI = 1.01-2.60), and postoperative fever (OR = 4.31; 95% CI = 1.14-16.23). There were no differences in hemorrhagic complications, ophthalmological complications, or bacterial meningitis.

Postoperative complications resulted in longer hospitalization and increased healthcare costs.

Endoscopic approaches are increasingly being utilized to manage sellar pathologies relative to microsurgery. Postoperative complications occur in both techniques with higher incidences observed following endoscopic procedures 2).
Internal carotid artery injury

Internal carotid artery injury after transsphenoidal approach.

see Leaks into sphenoid sinus.

Hypopituitarism

see Hypopituitarism after surgery.

Cerebrospinal fluid leak after endoscopic skull base surgery

Endoscopic transnasal surgery for tumors located at the base of the skull has a high incidence of postoperative cerebrospinal fluid leaks.

see Cerebrospinal fluid leak after endoscopic skull base surgery

Transnasal transsphenoidal (TNTS) resection of pituitary tumors involves wide fluctuation in hemodynamic parameter and causes hypertension and tachycardia due to intense noxious stimuli during various stages of surgery. None of routinely used anesthetic agents effectively blunts the undesirable hemodynamic responses, and therefore usually there is a need to use increased doses of anesthetic agents. Dexmedetomidine may ensure optimal intraoperative hemodynamic stability during critical moments of surgical manipulation. In addition, DEX reduced the anesthetic requirement with rapid recovery at the end of surgery.

DEX as an anesthetic adjuvant improved hemodynamic stability and decreased anesthetic requirements in patients undergoing Transsphenoidal resection of pituitary tumor. In addition, DEX provided better surgical field exposure conditions and early recovery from anesthesia.

Sinonasal complications

A high incidence of nasal complications after conventional transsphenoidal surgery observed through examination and not reported spontaneously point to the need of otorhinolaryngological investigation complemented by nasal endoscopy in patients submitted to procedures through this route.

Olfactory dysfunction

The patients must be informed that their olfaction may be impaired.

Obstruction

The percentage of nasal obstruction and nasal crusting was 38% in Monnier's series evaluating the transvestibular transeptal approach.

Chronic nasal irritation was seen in only 2% of cases in Feigenbaum et al.'s series.
A study assessed the long-term impact of endoscopic skull base surgery on olfaction, sinonasal symptoms, mucociliary clearance time (MCT), and quality of life (QoL). Patients with pituitary adenomas underwent TTEA (n = 38), while patients with other benign parasellar tumours who underwent an EEA with vascularised nasoseptal flap reconstruction (n = 17) were enrolled in this prospective study between 2009 and 2012. Sinonasal symptoms (Visual Analogue Scale), subjective olfactometry (Barcelona Smell Test-24, BAST-24), MCT (saccharin test), and QoL (short form SF-36, rhinosinusitis outcome measure/RSOM) were evaluated before, and 12 months after, surgery. At baseline, sinonasal symptoms, MCT, BAST-24, and QoL were similar between groups. Twelve months after surgery, both TTEA and EEA groups experienced smell impairment compared to baseline. Moreover, EEA (but not TTEA) patients reported increased posterior nasal discharge and longer MCTs compared to baseline. No significant changes in olfactometry or QoL were detected in either group 12 months after surgery. Over the long-term, expanded skull base surgery, using EEA, produced more sinonasal symptoms (including loss of smell) and longer MCTs than pituitary surgery (TTEA). EEA showed no long-term impact on smell test or QoL.

**Hyponatremia after transsphenoidal surgery**

see Hyponatremia after transsphenoidal surgery.

**References**


