Infrachiasmatic corridor

The infrachiasmatic corridor is the most important surgical access route for craniopharyngiomas and was identified and used in clinical series. The aims of this study were to describe the characteristics that assist dissection and resection rates in endoscopic surgery of solid, cystic, and recurrent cases and their importance in the infrachiasmatic corridor in endoscopic surgery.

Methods: One hundred operations on 84 patients with pathologically identified craniopharyngioma were included in the study. The MRI findings were evaluated, and the location of the lesions was classified as (1) infrasellar; (2) sellar; or (3) suprasellar. In the sagittal plane, we measured the longest diameter of cystic and solid components and the height of chiasm-sella. Images were assessed for the extent of resection and were classified as gross total resection. This was deemed as the absence of residual tumor and subtotal resection, which had residual tumor.

Results: The infrasellar location was reported in 7/84 (8.3%) patients, the sellar location in 8/84 (9.5%), and the suprasellar location in 69/84 (82.1%) patients. The narrow and high chiasm-sella were observed in 28/69 (40.5%) and 41/69 patients (59.4%), respectively. The mean distance of the chiasm-sella was 9.46± 3.76. Gross total tumor resection was achieved in 60/84 (71.4%) and subtotal tumor resection was performed in 24/84 (28.6%) patients. The results revealed that suprasellar location (OR: 0.068; p = 0.017) and recurrent cases (OR: 0.011; p<0.001) were negative predictive factors on GTR. Increasing the experience (OR: 42,504; p = 0.001) was a positive predictor factor for GTR.

Conclusion: An EETS approach that uses the infrachiasmatic corridor is required for skull base lesions extending into the suprasellar area. The infrachiasmatic corridor can determine the limitations of endoscopic craniopharyngioma surgery. This corridor is a surgical safety zone for inferior approaches [1)].

An extended endoscopic transsphenoidal approach is required for skull base lesions extending to the suprasellar area. Inferior approach using the infrachiasmatic corridor allows access to the lesions through the tumor growth that is favorable for the extended transsphenoidal approaches. Infrachiasmatic corridor is a safer route for the inferior approaches that is made up by basal arachnoid membrane and Liliequist's membrane with its leaves (diencephalic and mesencephalic leaf). This area extends from the optic canal and tuberculum sella to the corpus mamillare. We performed extended endoscopic approach using the infrachiasmatic corridor in 52 cases, including tuberculum sella meningiomas (n:23), craniopharyngiomas (n:16), suprasellar Rathke's cleft cyst (n:6), pituitary neuroendocrine tumor (n:2), fibrous dysplasia (n:1), infundibular granulosa cell tumor (n:2), and epidermoid tumor (n:2). Total resection was achieved in 17 of 23 (74%) with tuberculum sellae meningioma using infrachiasmatic approach. Twenty patients presented with visual disorders and 14 of them improved. There were two postoperative cerebrospinal fluid (CSF) leakages and one transient diabetes insipidus and one permanent diabetes insipidus. Sixteen patients were operated on by the infrachiasmatic approach for craniopharyngiomas. Improvement was reached in seven of eight patients presented with visual disorders. Complete tumor resection was performed in 10 of 16 cases and cyst aspiration in 4 cases, and there were remnants in two cases. Postoperative Cerebrospinal fluid fistula was seen in two patients. Infrachiasmatic corridor provides an easier and safer inferior route for the removal of middle midline skull base lesions in selected cases [2)].

1)

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2)

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