Pituitary Tumors

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Pituitary tumors are common lesions believed to account for 10 ~ 15% of all primary brain tumors. Epidemiologic estimates indicate an annual incidence of 8.2 ~ 14.7 cases per 100000 people. Pituitary tumors are the third most common primary intracranial tumor, preceded in frequency only by gliomas and meningiomas. The highest incidence of pituitary tumors is between the third and sixth decades of life.

Surgical approaches to the sellar region can be broadly divided into three groups: transsphenoidal approaches, conventional craniotomy, and alternative skull base approaches. The choice of surgical approach depends on several factors, including the size of the sella and its degree of mineralization, the size and pneumatization of the sphenoid sinus, the position and tortuosity of the carotid arteries, the presence and direction of any intracranial tumor extensions, the presence of any uncertainty about the pathology of the lesion, and whether prior therapy has been administered. The majority of all pituitary tumors can be accessed through a transsphenoidal approach. A transsphenoidal approach is preferred but the following circumstances: tumor with significant anterior or lateral or posterior extension into the anterior or middle or posterior cranial fossa, the fibrous consistency of a tumor with suprasellar extension, and uncertainty of the pathology. Occasionally, a single approach, transsphenoidal or transcranial, is insufficient to achieve complete tumor removal. In such situations, a combined transsphenoidal transcranial approach can be used.

During transsphenoidal approach, the neurosurgeon and otolaryngologist work as a team. Both nostrils are used, and nose should be adequately decongested first. 0-degree and 30-degree endoscope will be used. We identify right side sphenoid ostium. Microdebrider, Kerrison rongeur, septal forceps, and cutting forceps are used for wide sphenoidotomy, which means that it extends superiorly to the roof of the sphenoid, inferiorly to the floor of the sphenoid sinus, and laterally to the superior turbinate on either side. The wide range provides the ability to use both hands by two surgeons enabling

introduction of up to four separate instruments, two through each nostril. We identify the landmarks within sphenoid sinus, and confirm the landmark by neuronavigation. Sellar floor is removed, and the boundaries of removal of the sellar floor are the planum sphenoidale superiorly, clivus inferiorly, and the carotid prominence laterally. A systematic approach in removing the tumor is used to avoid any residual tumor being left behind. Once the tumor has been removed, an endoscope is used to view the cavity of the sella and suprasellar cistern to ensure absence of residual tumor. After the tumor has been completely removed, we use several methods for hemostasis. Sellar floor repair is performed subsequently. The remission and resection rate after transsphenoidal removal of pituitary tumor ranges from 30% to 100%. The variation of the rate depends on pathology and size of the pituitary tumor.