

Does a partial excision for craniopharyngioma indicate a defeat for the surgeon?

*Square in your ship's path are Sirens, crying
beauty to bewitch men coasting by;
woe to the innocent who hears that sound!
He will not see his lady nor his children
in joy, crowding about him, home from sea;
the Sirens will sing his mind away
on their sweet meadow lolling. There are bones
of dead men rotting in a pile beside them
and flayed skins shrivel around the spot.*

Homer's *Odyssey* on the Sirens

Craniopharyngioma could well be the Homer's "siren" for the neurosurgeon. I have used this comparison as the pathology is benign and surgery may be very satisfying and yet the consequences may be catastrophic. Experienced neurosurgeons may go back to their days, when they did their first surgery for craniopharyngioma. It was possibly a cystic tumor as this is what is usually given as a first case for the young neurosurgeon. One can remember the satisfaction that one gets by just decompressing the cystic portion, the gushing yellow fluid laden with the transparent shining cholesterol crystals, the smug contentment when every bit of this fluid is washed off by thorough irrigation. However, it is only after this that the surgeon is further tempted toward the darker side of this treacherous lesion; the challenge to excise the capsule. Here, one may encounter two situations, the first where the capsule is densely adherent to the surrounding structures and the wise novice surgeon accepting his limited experience either calls his senior colleague or if no such help is available performs a partial excision and calls it a day. The second situation is where the capsule may be dissected off easily and the surgeon once again may do three things - He either proceeds for a "total excision" (and wins the accolades of his assistant), performs a near total excision leaving a small bit of capsule near the hypothalamus or again calls for help from his/her senior colleague, especially while dissecting the portion of tumor

close to hypothalamus. This is where the neurosurgeon "flirts" with the "siren." This is more, so as this aspect of surgery while is uneventful may have the greatest impact on the patient.

The outcome could result in three different possibilities again^[1] the patient recovers uneventfully. If the surgeon had performed a partial excision, he may feel a bit resentful that he could not proceed for a radical excision^[2] the patient develops a transient diabetes insipidus, which recovers over the next few weeks.^[3] The patient develops a severe diabetes insipidus and incurs a stormy post-operative course. Following his/her recovery he/she will probably require hormonal and steroid replacement for the rest of life.^[4] Much less uncommonly, the patient may not become fully conscious, especially if the surgeon has been aggressive during dissection around the hypothalamic axis. Patient may require prolonged ventilation, slow weaning off. The consciousness may return slowly over the next few weeks. Patient again with all probability will require permanent hormonal/steroid replacement and may be left with severe cognitive deficits. The last two situations call for high standards of intensive care and high-level of expertise and patience from the intensive care unit intensivist. Following discharge, the life again places innumerable challenges on the patient. Daily replacement therapy is not easy and it calls for a lot of strength and will power both from the patient and his/her family members. Revision of dosage for replacement therapy during every bout of infection or any other physical stress can be challenging. An extensive review of literature from 1,980 onward has revealed that (PubMed, Science Citation Index Expanded, EMBASE, and Scopus)^[1-4] even though the survival rates range from 91% to 98%, the quality of survival is frequently impaired. Long-term sequelae severely impair the quality-of-life of over 50% of long-term survivors. These include extreme obesity, lack of secondary sexual characteristics, shortness of height, and also cognitive impairment along with depression due to inability to fit into the social milieu.

Müller *et al.* following an extensive literature quoted "total resection is the treatment of choice in patients with favorable tumor localization, with extreme care taken to preserve hypothalamic-pituitary and optical nerve functions. When tumor localization is unfavorable, i.e., involvement of hypothalamic or optic structures, a limited resection followed by local irradiation is

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Quick Response Code:	Website: www.ijns.in
	DOI: 10.4103/2277-9167.118107

recommended. Optimal timing of recurrence-inhibiting irradiation after incomplete resection is currently under investigation in an international trial”.^[2,3]

While this sounds logical and simple, it may not be so easy to follow, especially for the surgeons who get “tempted” by the tumor just like the unfortunate sailors in Homer’s Odyssey who got lured by the Sirens.

Attending congresses and listening to master neurosurgeons or watching their videos are not always helpful. Neither are words of some neurosurgeons who present their large experience and claim that they never have performed anything less than complete excision. Nothing will ultimately help more than personal experience and training under experienced mentors even though it may be painfully slow.

The surgeon should remember that not all craniopharyngiomas behave in the same manner at surgery. A careful assessment should be made; extreme caution should be taken while dissecting the capsule from the optic nerve. Highest operating magnification will help in preserving the perforators around the optic nerve. The greatest danger lurks, when trying to dissect the capsule from the hypothalamus.^[5] It may be sometimes wise to leave a small fragment of capsule adherent to hypothalamus rather than trying to excise it completely.

It may have a great impact on the quality-of-life of the patient.

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How to cite this article: Chandra PS. Does a partial excision for craniopharyngioma indicate a defeat for the surgeon?. *Indian J Neurosurg* 2013;2:113-4.

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