

Is staged surgery for giant vestibular schwannomas always better in improving outcome: Needs socioeconomic consideration?

Sir,

Bandlish *et al.* reported 12 cases of giant vestibular schwannomas (GAS) operated through a retrosigmoid approach in a staged manner over two consecutive days

after a rest at night in intensive care unit.^[1] Authors observed that staging improved tumor resection rate and also provided comfort to surgeon without increasing major surgical risks in hospitals; in hospital lacking advanced facility staging cannot be recommended for every case; however, occasional staging is unavoidable and definitely advocated. Optimal management for GVS must balance long-term functional outcome with tumor control. Most surgeons would opine surgical resection as the first-line treatment. Improved understanding of the natural history and pathophysiology of vestibular schwannoma led to possible complete surgical resection. Ramina *et al.* observed that complete resection of GVS was possible in all primary but also in recurrent and large residual cases in single-stage surgery with a low morbidity rate is possible, but preservation of the facial nerve is difficult due to severe scar tissue.^[2] Total surgical removal is the only treatment option for these giant lesions. Samii *et al.* also further advocated and opined total resection of GVS is possible.^[3] Samii *et al.* evaluated the outcome of radical surgery in giant vestibular schwannoma and concluded total tumor removal can be achieved using a retrosigmoid approach with zero mortality and further hearing preservation is possible.^[3] However, it was associated low morbidity rate for facial nerve. GAS management definitely possess a surgical challenge due to giant size of lesion, small capacity of posterior fossa and poor surgical plane with brain stem, small space for surgical manipulation, bleeding and these collectively may contribute to neurological worsening and rare cases morbidity and mortality. With advancement in the field of neuroimaging, delineating extension, anatomical relation of neurovascular structure, intraoperative monitoring, and immense experience of growing number of neurosurgical specialist have yielded insight to deal with challenge in a scientific way. Preparation of surgery starts from a preoperative period, co-morbid illness, presurgical anesthetic evaluation and initiation of perioperative corticosteroid. Proper positioning is very important, as elevated head position gives advantages of sitting position, thereby considerably minimizing blood loss and providing comfort to surgeon ease.^[4,5] Need for CSF diversion should be considered in the form of lumbar drain, VP shunt, EVD drain, or releasing CSF from cistern and putting cottonoid patty into cisterna magna aids in continuous drainage of CSF making posterior fossa lax.^[5]

Intraoperative larger craniotomy may be helpful to avoid deleterious effect of prolonged retraction and foramen magnum rim should be exposed and removed to aid in CSF release and dissection of migrated tonsil and lower pole of lesion after defining sigmoid and transverse sinus,

and mastoid drilling. Dura is first incised inferomedially to release CSF from a cisterna magna, arachnoid is liberally opened, and tonsil is retracted up and medially. Intraoperatively debulking with large biopsy forceps is done without peeling arachnoid; as it is seldom associated with considerable bleeding, which can be controlled by bipolar or topical hemostatic agents, gel foam, surgical tamponade with cottonoid. Important to note is that mobilizing arachnoid without proper debulking causes tear of thin venules and vein, which fails to contract in view of stretched wall encasing large residual making persistent stretching of arachnoid, which promotes blood loss. Another important aspect is dissection plane with brainstem vessel medially, after debulking it becomes easy. So principle should be internal debulking and continuing internal debulking and in the end tumor tissue instead of capsule mobilization should be gradually and progressively peeled away from arachnoid coverings, it eases pressure on vessel, which easily contract and promotes hasty hemostasis and further microneurosurgical dissection technique can be vividly applied. So we feel staging may be beneficial in short term, especially in developing country where resource is important constraint. Surgeon can further improve surgical result with acquiring current surgical technical advancement instead of 2 days surgery proposed by Bandlish *et al.* on presumption of non-availability of CUSA and facial nerve monitor. Proper positioning, proper exposure and meticulous microsurgical dissection techniques helped us immensely to reduce blood loss, thereby providing opportunity for better dissection and preservation of neural tissue. We are operating with lateral position with head elevation and dissection technique lead to remarkable reduction in need of blood transfusion. Further intraoperative anaesthesia with total intravenous anesthesia without using nitrous oxide or volatile anesthetic agent aid in reducing intracranial pressure, making surgical procedure smooth and proper maintenance of anesthesia avoid intermittent rise of hypertension or raised intracranial pressure for smooth progression of surgical procedure.

Also, the role of trained surgical team including staff nurse and paramedics is vital. So team approach with modern microsurgical technique can go a long way in replicating the result with zero percent mortality although some morbidity is indispensable. As developing countries have scarcity of medical facility, getting overburdened with huge patient load, carry ethical morale to provide care to needy patients, more so staged procedure will definitely warrant double resources and timing and also depriving other patient to undergo surgical procedure.

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