

Evaluating Outcomes of Primary Dural Closure vs Duraplasty in Patients Undergoing Posterior Fossa Surgery

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BACKGROUND

Posterior fossa surgery is associated with an increased risk of cerebrospinal fluid (CSF) leakage, pseudomeningocele, and wound-related complications. Primary dural closure and duraplasty are commonly used techniques; however, the optimal method of dural closure remains uncertain. Outcomes may also differ according to the underlying posterior fossa pathology.

OBJECTIVE

To compare postoperative outcomes between primary dural closure and duraplasty in patients undergoing posterior fossa surgery and to assess whether the underlying posterior fossa pathology influences postoperative complications.

METHODS

- Retrospective comparative cohort study
- Patients undergoing posterior fossa surgery
- Grouped by dural closure technique (primary closure or duraplasty)
- Data on demographics, underlying pathology and postoperative outcomes were analyzed and compared between groups

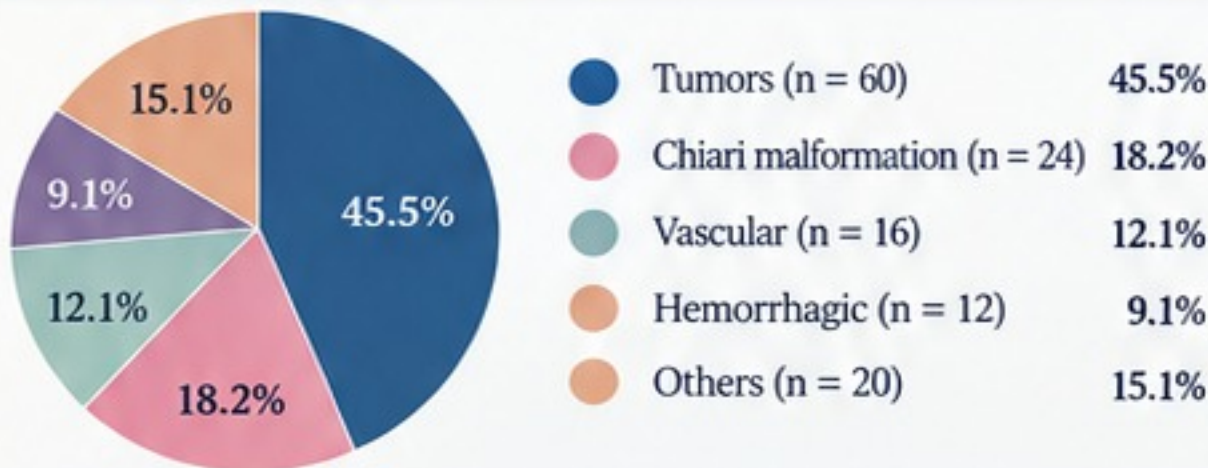
STUDY POPULATION

132
patients

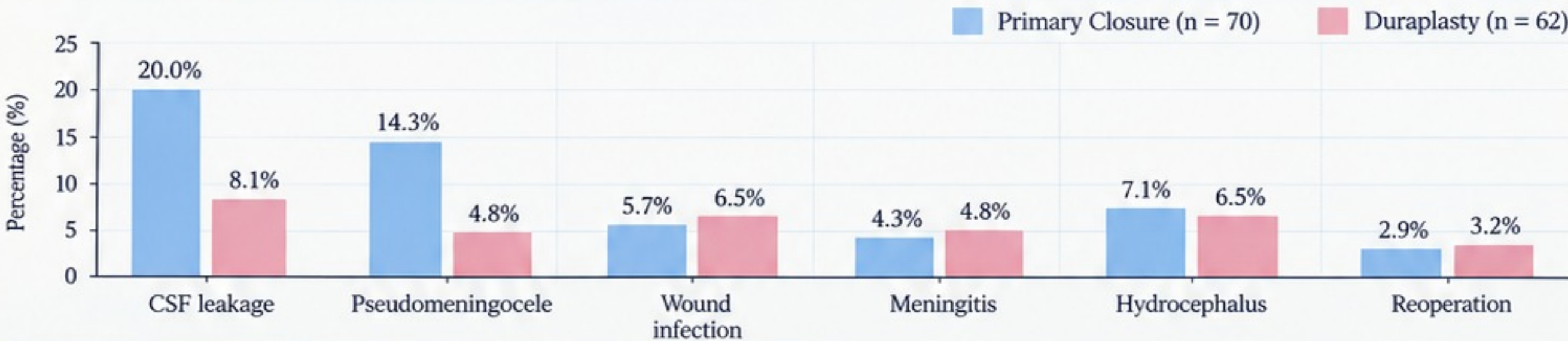
Primary Dural Closure
n = 70
(53.0%)

Duraplasty
n = 62
(47.0%)

UNDERLYING POSTERIOR FOSSA PATHOLOGY



POSTOPERATIVE COMPLICATIONS



COMPARISON OF OUTCOMES

Outcome	Primary Closure (n = 70)	Duraplasty (n = 62)
CSF leakage	14 (20.0%)	5 (8.1%)
Pseudomeningocele	10 (14.3%)	3 (4.8%)
Wound infection	4 (5.7%)	4 (6.5%)
Meningitis	3 (4.3%)	3 (4.8%)
Hydrocephalus	5 (7.1%)	4 (6.5%)
Reoperation	2 (2.9%)	2 (3.2%)

KEY FINDINGS

- Duraplasty was associated with lower rates of CSF leakage and pseudomeningocele, particularly in patients with tumors and Chiari malformation.
- Primary dural closure was associated with shorter operative time and hospital stay.
- Rates of wound infection, meningitis, hydrocephalus, reoperation, and neurological outcomes were comparable between groups.
- Underlying posterior fossa pathology significantly influenced the risk of CSF-related complications.

CONCLUSION

Both primary dural closure and duraplasty provide satisfactory outcomes after posterior fossa surgery. Duraplasty may reduce CSF-related complications in patients with extensive posterior fossa pathology, while primary closure remains effective when a tension-free watertight closure is achievable. Closure technique should be individualized based on pathology and intraoperative findings.