

# Decision-Making for Neurosurgical Treatment of Disabling Spasticity in Adults



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**Background:** Harmful and disabling spasticity is an obstacle in rehabilitation and caregiving. Neurosurgical intervention is a therapeutic option for patients with severe spasticity who do not respond to non-operative management. Currently, selective neuroablative procedures such as microsurgical dorsal root entry zone lesion (DREZ-otomy); dorsal rhizotomy (SDR); peripheral neurotomy (SPN) and intrathecal baclofen therapy (ITB) is a good alternative treatment for such patients. However, the ITB device is costly and the intrathecal drug is not available in Indonesia. **Objective:** To describe the decision-making process for the surgical treatment of disabling spasticity in the lower and upper limbs of paraplegic, tetraplegic and hemiplegic patients. **Material and method:** This study is based on a literature review and the experience from international fellowship in functional neurosurgery at Tokyo Women Medical University Hospital, Japan under supervised of Prof. Takaomi Taira. The study will describe about the indications, selection procedures and surgical techniques, including illustrative cases. **Results and discussion:** Three cases example have been performed DREZ-otomy, SDR and ITB in the context of the treatment of spasticity. Post-stroke patients with spasticity issues should be given more attention because of it will aggravate long-term quality of patients life. Early treatment, adequate and graded have to be done. Cases of spasticity who do not respond to conservative should be referred for neurosurgical treatment before arising contractures and deformity.

**Conclusion:** Briefly, ITB is indicated for paraplegic or tetraplegic patients with diffuse spasticity. Selective neuroablative procedures are indicated for severe focalized spasticity in the limbs after conservative treatment was fail.



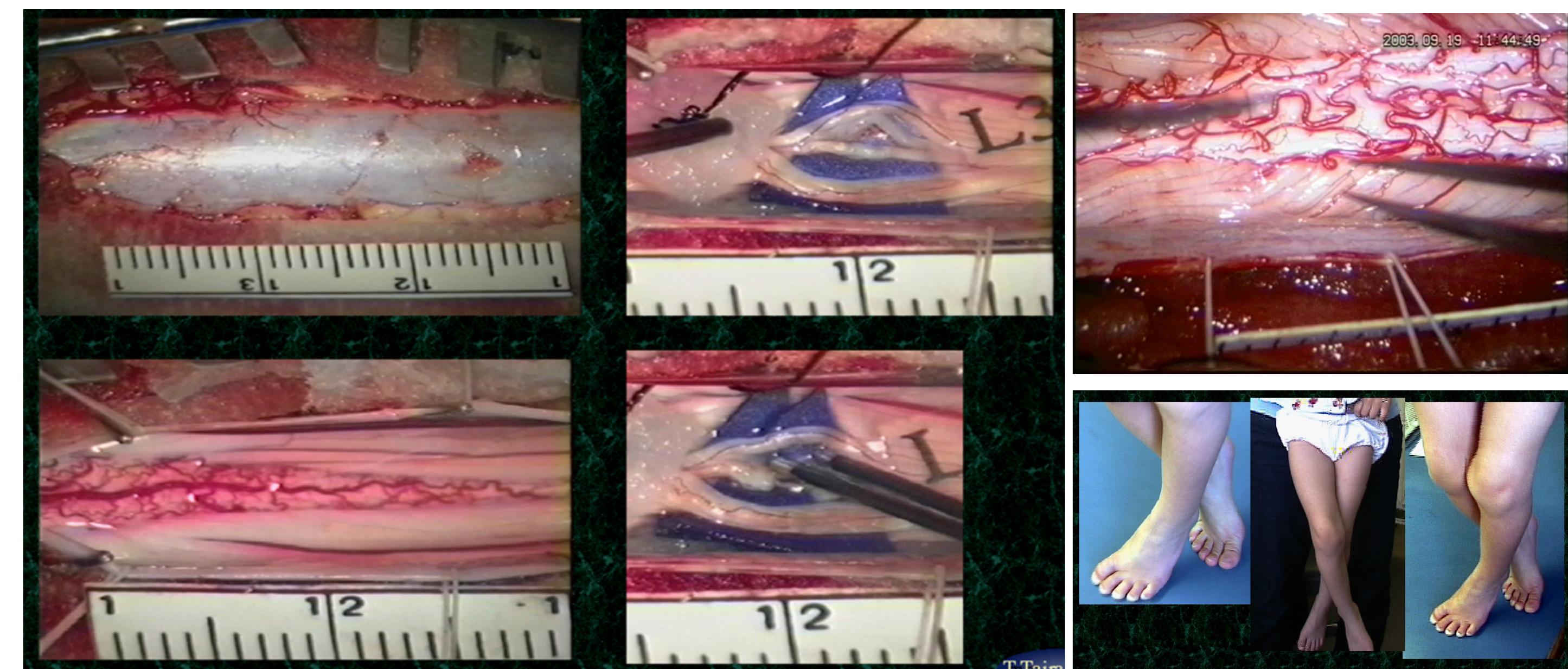
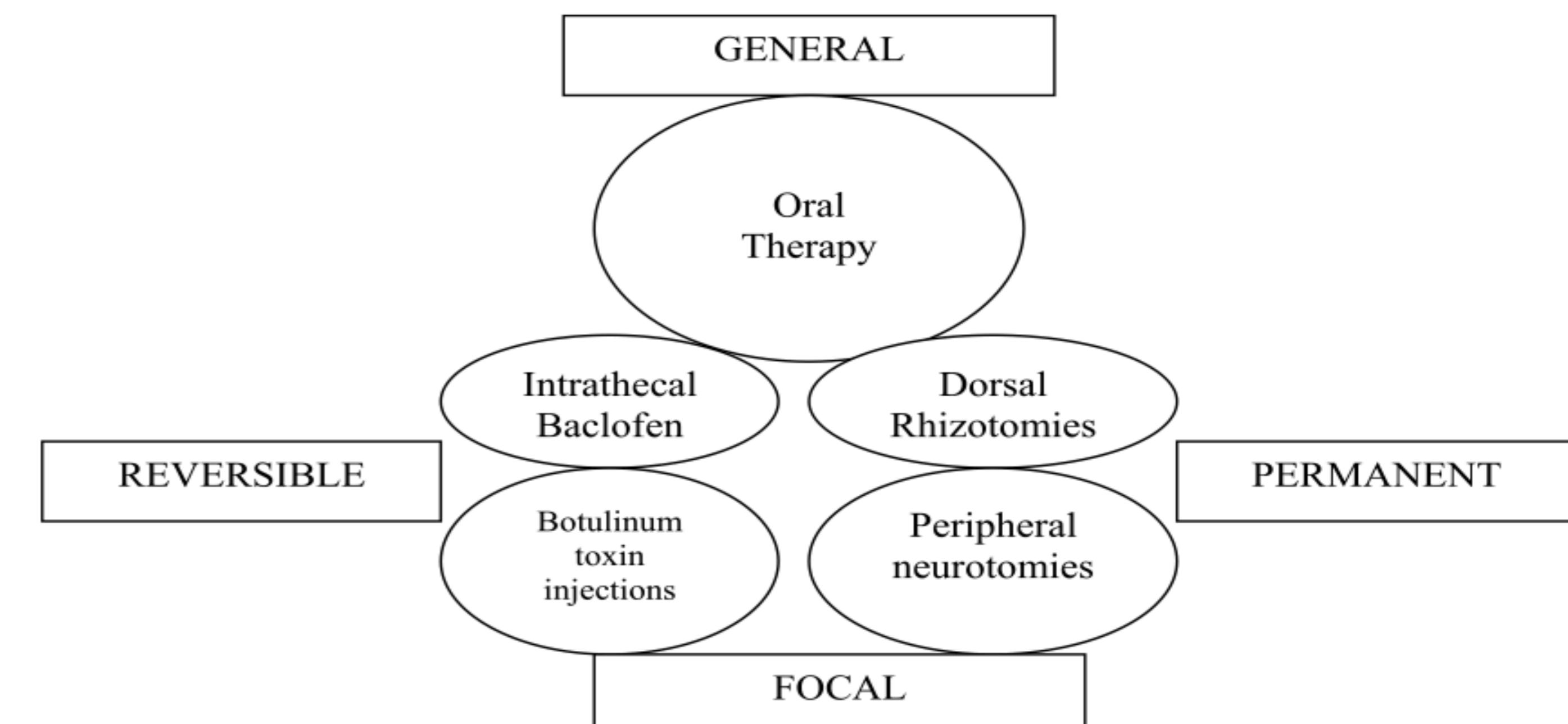
## Indications for Surgery in Adults

Neuro-ablative techniques are indicated for **severe focalized spasticity** in the limbs of paraplegic, tetraplegic, or hemiplegic patients.

ITB administration is indicated for para- or tetraplegic patients with **severe and diffuse spasticity**. Because it is **reversible**, this method must be considered **before an ablative procedure**.

Neurotomy are preferred when spasticity is localized to muscle groups innervated by a **small number of nerves** or by a **single peripheral nerve**.

When spasticity affects an **entire limb**, microsurgical **DREZotomy** is preferred.

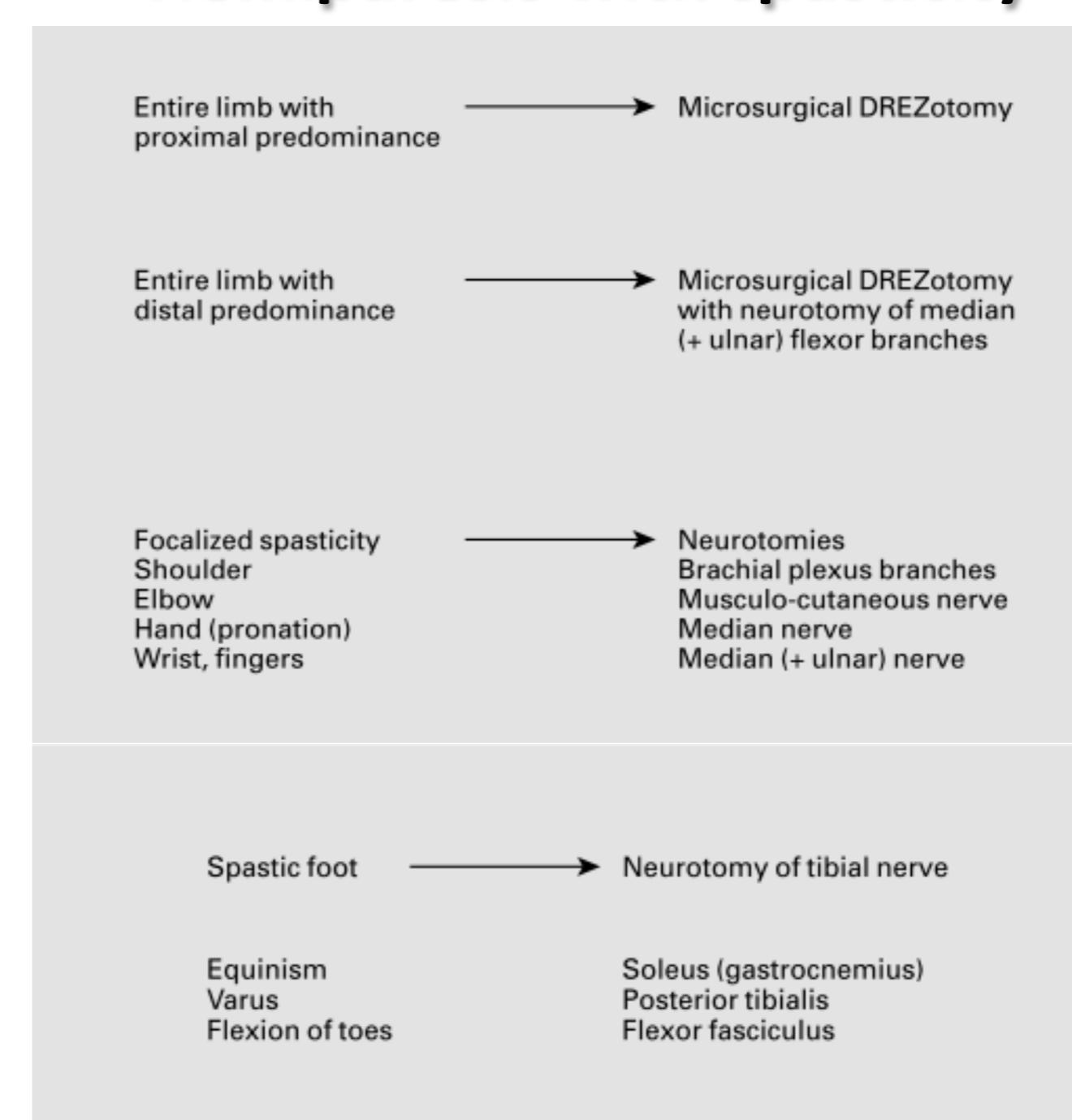


## Conclusion

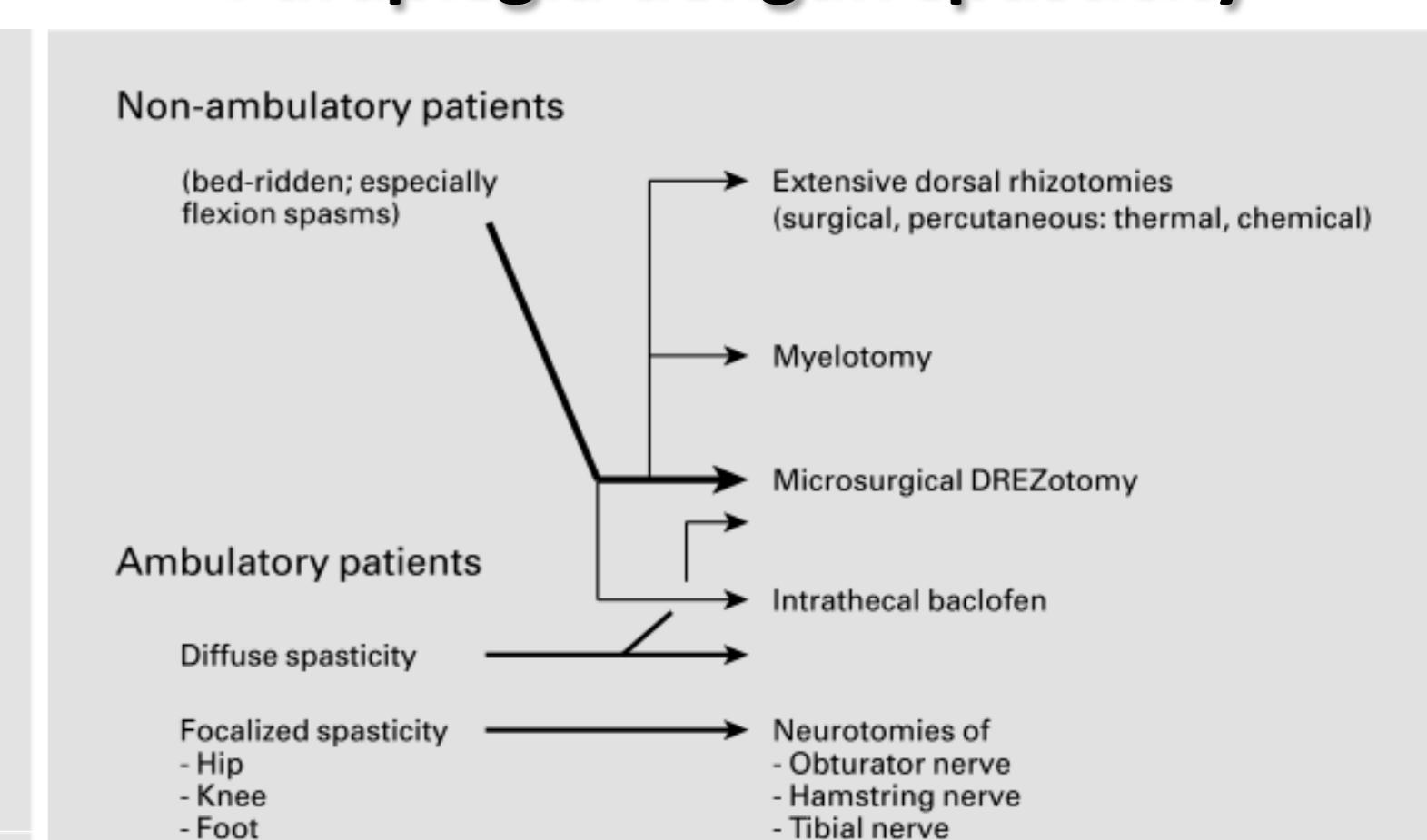
In the surgical management of severe spasticity, there are **no rigid protocols**, depends on:

- the topographic **extent of the spasticity** (local, regional or diffuse)
- but also the **clinical stage** (bedridden, wheel-chair bound or walking patients)
- a function of one's **own surgical experience, facilities and the ease of follow-up**.

## Hemiparesis with spasticity



## Paraplegia dengan spasticity



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