

MRI and IMAGING OF BRACHIAL PLEXUS

Dr. Rajesh Kumar Gupta

The brachial plexus is a complex mesh of nerves, which provides innervation to the upper limb and the upper chest. MRI is a powerful investigation of choice for brachial plexus imaging and a dedicated protocol is used to address brachial plexus pathologies.

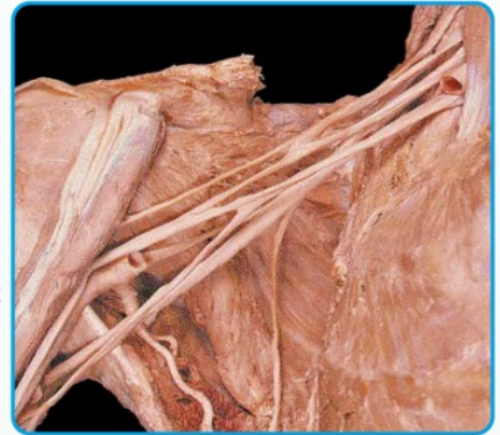
Key Points of indications

- Trauma
- Compressive Plexopathy
- Nontraumatic Plexopathy
- MR Neurography (MRN)

High-resolution High Matrix MR neurography (MRN) sequences allow us to directly visualise the nerves of the plexus. Edema and neuropraxia without any compressive lesion and discontinuity can be delineated. High resolution T2 3D FIESTA images at the level of the spinal canal allow visualisation of the intraspinal preganglionic nerve rootlets.

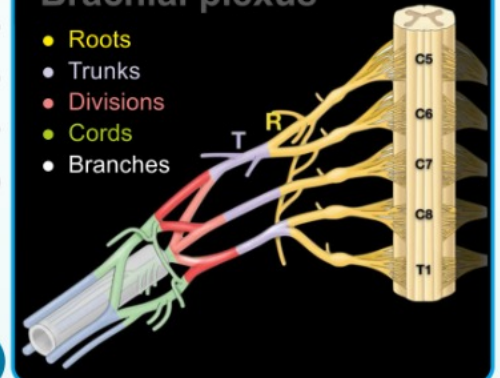
At the same time, end organ skeletal muscle denervation changes are picked up well.

In cases of traumatic brachial plexopathy, the management depends upon the site and as well as the severity of the injury. It is essential to differentiate pre ganglionic from postganglionic injury and to be able to grade the injury from neuropraxia to neurotmesis.



Brachial plexus

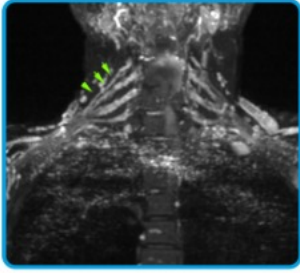
- Roots
- Trunks
- Divisions
- Cords
- Branches



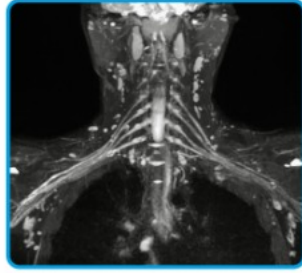
The common causes of nontraumatic plexopathies include:

- Infective
- Inflammatory
- Post radiation plexopathy
- Tumoral Plexopathy

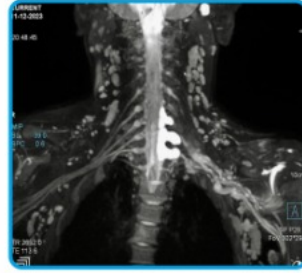
Primary and secondary tumors of the brachial plexus are also common, with the most common primary tumor being a peripheral nerve sheath tumor. The common secondary is Pancoast (superior sulcal) Tumor.



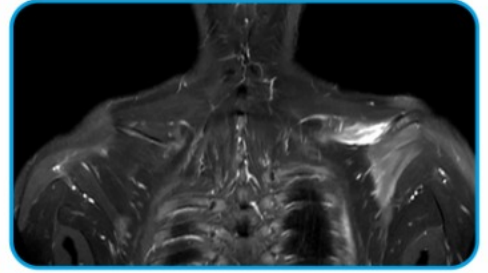
A



B



C



D

- A-** Chronic Plexopathy of bilateral upper trunk, which is marked reduced in volume than other trunk.
- B-** Normal MR anatomy of brachial plexus.
- C-** Pseudomeningocele : CSF filled T2 hyperintense sac, following complete avulsion of the nerve root.
- D-** Bilateral asymmetric upper trunk Plexopathy (post infectious) resulting muscle atrophy of root value C5 & C6

Key Points:

- The Brachial plexus is complex anatomic area and needs thorough understanding of the anatomy and pathology.
- High-resolution MRI and neurography (MRN) are techniques that delineate the brachial plexus well.
- Virtually all pathologies of the brachial plexus from trauma to tumors can be depicted with MRI and MRN.

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DR. RAJESH KUMAR GUPTA

DNB, DMRE, MNAMS, MSIVR, MICR, MIACI, MNIAI



DR. MRS. RITIMA GUPTA

BDS (Banglore), DHHCM (Pune)

504, Panama Tower, 75-Manoramaganj extension Beside Hotel Crown Palace,
near Geeta Bhawan Square, Indore Ph. : 0731-2526353, Mob.: 98260-12592



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