



Guidance document for processing PM-JAY packages

Arteriovenous Malformations (AVM)

Procedures covered: 4

Specialty: Neurosurgery

| Package name | Procedure name | HBP 1.0 code | HBP 2.0 code | Package price (INR) | ALOS |
|---|---|--------------|--------------|---------------------|--------|
| Arteriovenous malformation (AVM) excision | Intracranial | New Package | SN025A | 50,000 | 5 days |
| Arteriovenous malformation (AVM) excision | Intraspinal | New Package | SN025B | 50,000 | 5 days |
| Arteriovenous malformation (AVM) excision | Scalp | S800080 | SN025C | 25,000 | 5 days |
| Gamma Knife radiosurgery (GKRS) / SRS for tumors / Arteriovenous malformation (AVM) | Gamma Knife radiosurgery (GKRS) / SRS for tumors / Arteriovenous malformation (AVM) | S800083 | SN054A | 75,000 | 7 days |

Minimum qualification of the treating doctor:

Essential: MCh/DNB/Equivalent in (Neurosurgery, if required Vascular Surgeon)

Special empanelment criteria/linkage to empanelment module: Care at Tertiary Hospital. SRS/GKRS procedure in hospitals with availability

Disclaimer:

For monitoring and administering the claim management process of **Arteriovenous Malformation**, NHA shall be following these guidelines. This document has been prepared for guidance of PROCESSING TEAM and TRANSACTION MANAGEMENT SYSTEM of AB PM-JAY for the claims of procedures mentioned above. The hospitals can also refer to this document so that they have the insight on how the claims will be processed. However, this document doesn't provide any guidance on clinical and therapeutic management of patient. In that respect the hospitals and physicians may refer to any other relevant material as per the extant professional norms.

PART I: GUIDELINES FOR CLINICIANS AND HEALTHCARE PROVIDERS

1.1 Objective:

The purpose of this section is to act as a guidance & a clinical decision support tool for the clinicians in deciding the line of treatment, plan clinical management of patient and decide referral of cases to the appropriate level of care (as required) for treatment of patients under PMJAY and selection of corresponding Health Benefit Package.

It will also serve as a tool for hospitals to determine and submit the mandatory documents required for claiming reimbursement of health benefit package under PMJAY.

1.2 Clinical key pointers:

- Arteriovenous malformation (AVM) is a congenital vessel abnormality with abnormal communication between artery and vein
- Nidus is a tangle of arteries and veins connected by at least one fistula.
- An AVM can occur anywhere in the body, but brain and spinal AVMs present substantial risks when they bleed

BRAIN AVM

Clinical Presentation

- Intracerebral hemorrhage (most common)
- Seizure
- Headache
- Focal neurologic deficit
- Incidental finding

| Spetzler-Martin AVM grading system ¹⁸ | |
|--|--------|
| Graded feature | Points |
| Size ^a | |
| small (<3 cm) | 1 |
| medium (3–6 cm) | 2 |
| large (>6 cm) | 3 |
| Eloquence of adjacent brain | |
| non-eloquent ^b | 0 |
| eloquent ^b | 1 |
| Pattern of venous drainage ^c | |
| superficial only | 0 |
| deep | 1 |

^alargest diameter of nidus on non-magnified angiogram (is related to and therefore implicitly includes other factors relating to difficulty of AVM excision, e.g. number of feeding arteries, degree of steal, etc.)

^beloquent brain: sensorimotor, language and visual cortex; hypothalamus and thalamus; internal capsule; brain stem; cerebellar peduncles; deep cerebellar nuclei

^cconsidered superficial if all drainage is through cortical venous system; considered deep if any or all is through deep veins (e.g. internal cerebral vein, basal vein, or pre-central cerebellar vein)

Treatment options

- Surgery – For Spetzler-Martin I-III score AVMs
- Radiosurgery – For lesions in deep or eloquent areas that are unresectable – For patients who cannot have surgery or do not desire to undergo surgery



- Gamma knife radiosurgery (GKRS)
- Stereotactic radiosurgery (SRS)
- Endovascular embolization – For lesions

SPINAL AVM

- Spinal arteriovenous malformations (AVMs) are abnormal collections of blood vessels in the spinal canal that have a direct connection between the arterial system and the venous system without intervening capillaries
- AVMs account for about 4 percent of primary intraspinal masses, so the actual number of cases is very low. Eighty percent occur between ages 20 and 60
- Spinal dural AVMs are the most common type in adults
- Intradural AVMs are located outside the substance of the spinal cord
- Intramedullary AVMs are located within the substance of the spinal cord

Symptoms

- Eighty-five percent of spinal AVMs involve progressive neurological symptoms over months to years, especially back pain associated with progressive sensory loss and lower extremity weakness.
- Ten percent to 20 percent involve a sudden onset of weakness, numbness, difficulty urinating, urinary incontinence, fecal incontinence, or paralysis (usually in patients younger than 30) as a result of hemorrhage.

Treatment

- The treatment plan is formulated after careful consideration of the patient's clinical history, the symptoms, the physical examination and available diagnostic studies.
- Some lesions can be treated via minimally invasive endovascular embolization of the AVM to obliterate it.
- Lesions that have hemorrhage usually require surgical removal, especially those within the spinal cord or compressing the spinal cord.

1.3 Mandatory documents- For healthcare providers

Following documents should be uploaded by the concerned hospital staff at the time of pre-authorization and claims submission:

| Mandatory document | Intracranial AVM | Spinal AVM | Scalp AVM | Gamma Knife radiosurgery (GKRS) / SRS for tumors / AVM |
|---------------------------|-------------------------|-------------------|------------------|---|
|---------------------------|-------------------------|-------------------|------------------|---|

| | | | | |
|--|-----|-----|-----|-----|
| i. At the time of Pre-authorization | | | | |
| Clinical notes including evaluation findings, indication for procedure, and planned line of management | Yes | Yes | Yes | Yes |
| CT/MRI Brain/Spine | Yes | Yes | Yes | Yes |
| Angiography | Yes | Yes | Yes | Yes |
| Indication documented for GKRS/SRS treatment | -- | -- | -- | Yes |
| ii. At the time of claim submission | | | | |
| Detailed Indoor case papers (ICPs) | Yes | Yes | Yes | Yes |
| Detailed Procedure / operative notes | Yes | Yes | Yes | Yes |
| Intra-operative photographs (optional) | Yes | Yes | Yes | Yes |
| Detailed discharge summary | Yes | Yes | Yes | Yes |

PART II: GUIDELINES FOR PROCESSING TEAM

PART III: GUIDELINES FOR IT

3.1 Objective: To enable setting up of cross check mechanisms / rule engines within the IT platform (TMS) to ensure compliance with STGs and to prevent fraud / abuse of the Health Benefit Package.

3.2 Below mentioned are the scenarios where a provision would be built in TMS for pop-ups:

I. Was clinical presentation, history and imaging indicative of surgery? Yes

Till the time the functionality is being developed, the processing doctors shall check the above manually.

References

1. Mark S. Greenberg. Handbook of Neurosurgery. Eighth Edition. 2016. Thieme.
2. <https://www.uclahealth.org/neurosurgery/spinal-arteriovenous-malformation-avm>