



## Guidance document for processing PM-JAY packages

### Dural Arteriovenous Fistula

Procedures covered: 2

Specialty: Interventional Neuroradiology

Package name	Procedure name	HBP 1.0 code	HBP 2.0 code	Package price (INR)
Dural AVMs / AVFs	Dural AVFs (per sitting) with glue	S900003	IN001B	70,000
Dural AVMs / AVFs	Dural AVFs (per sitting) with onyx	S900004	IN001D	1,50,000

**ALOS:** 5 days

**Minimum qualification of the treating doctor:**

**Essential:** DM/Equivalent (in Interventional Neuroradiology), MCh/DNB/Equivalent in (Neurosurgery, if required Vascular Surgeon)

**Special empanelment criteria/linkage to empanelment module:** Care at Tertiary Hospital with facilities for interventional neuroradiology

**Disclaimer:**

For monitoring and administering the claim management process of **Dural AVFs**, 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:**

- Dural arteriovenous fistulas (dAVF) are vascular abnormalities in which arteries arising from branches of the carotid or vertebral arteries drain directly into the dural leaflets of the venous sinuses.

- The transverse-sigmoid junction is the most common location, with a slight left-sided predominance. They can also be found at tentorial, petrosal, ethmoidal, Sylvian, cavernous sinus, spinal dura, and superior sagittal sinus locations.
- The Borden and Cognard classifications (Appendix 1) are the most well-known classification systems used for predicting the aggressiveness of dAVFs.
- Most dural arteriovenous fistulas have no clear origin; however, they may be caused after a dural sinus thrombosis, trauma, infection, or prior craniotomy.

### **Clinical presentation**

- Incidental finding on imaging during workup for other conditions
- Some dAVFs can remain asymptomatic for a long period of time or even involute spontaneously
- Those with symptoms can be characterized either as aggressive or benign and can include any or a combination of the following symptoms:
  - Headache
  - Nausea/vomiting
  - Seizures
  - Cranial neuropathies
  - Pulsatile tinnitus (bruits)
  - Intracranial hypertension
  - Papilledema
  - Glaucoma
  - Hydrocephalus
  - Intracerebral hemorrhage
  - Speech or language issues
  - Coordination issues
  - Altered sensations
  - Weakness
  - Face pain
  - Dementia
  - Parkinsonism
  - Apathy
  - Vision problems
  - Proptosis

### **Treatment**

- The decision of whether to treat dAVFs is based on the patient's symptoms, medical comorbidities, and risk intracranial hypertension or hemorrhage.

- Lesions that are asymptomatic and low-grade tend to have a benign natural history, and are generally managed conservatively with serial monitoring.
- Those that are high-grade with cortical venous drainage or symptomatic are candidates for an intervention. Open surgery, endovascular embolization, and stereotactic radiosurgery are the main options for intervention.
- Endovascular surgery using embolic material or coil occlusion can involve transvenous, trans-arterial, direct access, or a combination of techniques to block the abnormal connection in the blood vessels. Agents used for DAVF embolization include, Onyx, polyvinyl alcohol particles, coils, and N-butyl cyanoacrylate.
- Surgery is usually indicated in cases in which endovascular approaches have failed or cannot be performed.
- Stereotactic radiosurgery achieves excellent rates of obliteration for low-grade lesions but is less effective for higher-grade lesions.

### Complications

- Subdural/Intracranial/Subarachnoid Hemorrhage
- Intracranial hypertension
- Venous congestion and edema
- Seizures

### 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	Dural AVFs (per sitting) with glue	Dural AVFs (per sitting) with onyx
<b>i. At the time of Pre-authorization</b>		
Clinical notes including evaluation findings, indication of procedure, and planned line of treatment	Yes	Yes
CT/MRI Brain/Spine / Digital Subtraction Angiography	Yes	Yes
<b>ii. At the time of claim submission</b>		
Detailed Indoor case papers (ICPs)	Yes	Yes
Detailed Procedure / operative notes	Yes	Yes
Intra-operative photographs (optional)	Yes	Yes

Post procedure Check Angiogram	Yes	Yes
Invoice/barcode of onyx/glue used	Yes	Yes
Detailed discharge summary	Yes	Yes

## **PART II: GUIDELINES FOR PROCESSING TEAM**

**2.1 Objective:** To provide guidance to the pre-authorization and claims processing team in ascertaining the medical necessity of procedure carried out vis a vis the patient's medical condition as evidenced by supporting documents/investigation reports etc., in deciding the admissibility and quantum of claim and compliance with mandatory documents by the hospital.

**2.2 Following mandatory documents to be diligently reviewed by the pre-auth / claims processing personnel:**

**2.2.1 At the time of pre-authorization processing- For pre-authorization processing doctor (PPD):**

- Clinical notes - detailed history, signs & symptoms, evaluation findings, indication for procedure, planned line of treatment, and advice for admission?
- Did imaging and clinical presentation confirm the diagnosis?

**2.2.2 At the time of claim processing- For claims processing doctor (CPD)**

- Are the detailed ICPs with daily vitals and line of treatment?
- Are the detailed procedure / Operative Notes available?
- Was the imaging indicative of surgery?
- Was invoice/barcode of glue/onyx used submitted?
- Is the Discharge summary with follow-up advise at the time of discharge?

## **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:**

- Was clinical presentation, severity and imaging indicative of surgery? Yes

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

## **References**

1. Zyck S, De Jesus O, Gould GC. Dural Arteriovenous Fistula. [Updated 2020 Jul 1]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2020 Jan-. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK532274/>
2. Baharvahdat H, Ooi YC, Kim WJ, et al. Updates in the management of cranial dural arteriovenous fistula. *Stroke and Vascular Neurology* 2020;5:doi: 10.1136/svn-2019-000269
3. Kim ST, Jeong HW, Seo J. Onyx Embolization of Dural Arteriovenous Fistula, using Scepter C Balloon Catheter: a Case Report. *Neurointervention*. 2013;8(2):110-114. doi:10.5469/neuroint.2013.8.2.110

## Appendix 1

The Borden classification system describes lesions as the following types based on the direction of flow and presence of cortical venous drainage:

- Type I: anterograde flow into a dural venous sinus or meningeal vein. Usually have a benign natural history.
- Type II: anterograde flow into a dural venous sinus, however, they also have retrograde cortical venous reflux. These are considered high-grade lesions with aggressive behavior in 39%.
- Type III: direct retrograde flow from the fistula into cortical veins, thereby causing venous hypertension. They have aggressive behavior in 79%.

The Cognard classification, dAVFs are divided into the following seven categories based on the location, direction of flow, presence of cortical venous drainage, and presence of venous ectasia:

- Type I: confined to sinus, antegrade flow, and no cortical drainage. They have a benign clinical course.
- Type IIa: confined to the sinus, retrograde flow into the sinus, no cortical drainage. These have a 20% risk of intracranial hypertension.
- Type IIb: drainage into a venous sinus, antegrade flow, reflux into cortical veins. These have a 10% risk of hemorrhage induced by venous reflux.
- Type IIa+b: drainage into a venous sinus, retrograde flow, reflux into cortical veins. These have a 66% risk of hemorrhage with or without intracranial hypertension.
- Type III: direct drainage into a cortical vein without venous ectasia. These have a 40% risk of hemorrhage.
- Type IV: direct drainage into a cortical vein with venous ectasia. These have a 65% risk of hemorrhage.
- Type V: direct drainage into spinal perimedullary veins. They present with progressive myelopathy in 50% of cases.