

Guidance document for processing PM-JAY packages

Coil Embolization for Aneurysms

Procedure covered: 1

Specialty: Interventional Neuroradiology

Package name	Procedure name	HBP 1.0 code	HBP 2.0 code	Package price (INR)
Coil embolization for aneurysms (includes cost of first 3 coils + balloon and / or stent if used)	Coil embolization for aneurysms (includes cost of first 3 coils + balloon and / or stent if used)	S900001	IN003A	1,00,000 + Implant cost

ALOS: 7 days

Minimum qualification of the treating doctor:

Essential: DM/Equivalent (in Interventional Neuroradiology), MCh/DNB/Equivalent (in Neurosurgery)

Special empanelment criteria/linkage to empanelment module: Care at Tertiary Hospital with facilities for endovascular treatment or neurosurgery.

Disclaimer:

For monitoring and administering the claim management process of **Coil embolization for aneurysms**, 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:

- Endovascular coiling remains a feasible and effective treatment option for the treatment of ruptured and unruptured aneurysms, especially as an alternative to surgical clipping in most cases, which is associated with higher morbidity and mortality rates.

- Intracranial aneurysms are focal outpouching from intracranial arteries with weak walls as compared to normal arteries and therefore have propensity to present with intracranial bleed, usually subarachnoid haemorrhage (SAH). The 3 major types of intracranial aneurysms are saccular, fusiform, and dissecting. Intracranial aneurysms range in size from small (<12 mm in diameter) to large (12–25 mm), and to giant (>25 mm).
- Devices to augment coil embolization now include balloon-assist techniques and intracranial stents to increase coil packing and parent artery patency, as well as reduce the risk of coil herniation.
- Balloon-assisted coil embolization reduces the risk of coil prolapse into the parent artery and can provide immediate proximal control with balloon inflation in case of intraprocedural aneurysm rupture.
- Stent-assisted coiling allows for increased coil packing density, critical for the treatment of wide-necked, large and giant aneurysms, thereby significantly improving obliteration rate and reducing aneurysm recurrence rate.

Clinical diagnosis

Most intracranial aneurysms are small and asymptomatic. Large aneurysms may have a mass effect, causing compression on the brain and cranial nerves and neurological deficits.

- **Subarachnoid haemorrhage (SAH):** The most common presentation of intracranial aneurysm is subarachnoid haemorrhage in non-traumatic background. On presentation, patients typically report experiencing the worst headache of their lives (thunderclap headache). The association of meningeal signs should increase suspicion of SAH.
- **Mass effect:** The so-called giant aneurysms (diameter >2.5 cm) are more often symptomatic because of their mass effect. Some intracranial aneurysms produce cranial neuropathies. A common example is the third nerve palsy that is secondary to posterior communicating artery aneurysm or III/IV/VI nerve palsy seen in giant cavernous ICA aneurysms. Rarely, even visual loss caused by an ophthalmic artery aneurysm that compresses the optic nerve has been reported.
- **Other symptoms:** Other, less common, symptoms include seizures, headaches, and transient ischemic attacks or cerebral infarction secondary to emboli (usually associated with large or giant partially thrombosed aneurysms).

Evaluation

Any patient presenting with or suspected to have non-traumatic subarachnoid haemorrhage (SAH) or uncommonly, focal neurological deficit with demonstration of aneurysm on Imaging should be suspected of harbouring an aneurysm.

Investigations

i) CT Scan

CT scan should be sought on any patient with non-traumatic SAH. Large Aneurysms or their wall calcification may also be at times seen on NCCT.

ii) CT Angiogram (CTA)

Conventional angiography like images of the cerebral vasculature can be obtained using rapid contrast infusion and thin-section dynamic CT scanning (CTA).

iii) MR Angiogram (MRA)

MRA should be usually performed only if there is some contraindication to CTA or CT cannot be easily performed.

iv) Digital Subtraction Angiogram (DSA)

It remains the gold standard for diagnosis, particularly in delineating small aneurysms. DSA is usually always required in case any endovascular or surgical treatment is planned.

Clinical Grading of Patients with Intracranial Aneurysms

- The most important predictor of the outcome of subarachnoid hemorrhage is the patient's clinical condition on arrival at the hospital.
- One of the most widely used systems for assessing the patient's clinical condition after an SAH is the World Federation of Neurological Surgeons (WFNS) Scale. It is based on the Glasgow Coma scale and is used to measure the level of consciousness following SAH.
- The tools that are most often used to evaluate the outcomes of intervention of intracranial aneurysms are the Rankin Score and the Glasgow Outcome Score.

Treatment

Two major strategies for treatment are:

- (1) To closely follow up in case of incidentally detected asymptomatic aneurysms by clinical and radiological assessment periodically.
- (2) In symptomatic group, treatment options include endovascular coiling of the sac or surgical clipping of the aneurysm neck

- The goal of oblitative treatment is to prevent primary or recurrent SAH.
- Small, asymptomatic aneurysms less than **10 mm** in diameter may be monitored without any intervention other than treatment for underlying risk factors such as hypertension.
- Ruptured aneurysms should be treated urgently (within 72 h of haemorrhage) to prevent rebleeding and to permit aggressive management of vasospasm.
 - Definite Management: Endovascular (trans-arterial route) coiling or Surgical Clipping

Endovascular Management

- The selection of coil embolization in the treatment of intracranial aneurysms appears to be based mainly on the morphology, location and accessibility of the aneurysm and the age, clinical condition, and comorbidity of the patient.

- Coil embolization has been generally considered when surgical treatment is not feasible or unsafe.
- Coil embolization offers treatment for people at increased risk for craniotomy, such as those over 65 years of age, with poor clinical status, or with comorbid conditions.
- Compared to small aneurysms with a narrow neck in the anterior circulation, large aneurysms (> 10 mm in diameter), aneurysms with a wide neck (>4mm in diameter), and aneurysms in the posterior circulation have lower occlusion rates and higher rate of hemorrhage when treated with coil embolization.

Complications

The most common complications of coil embolization:

- Perforation of the aneurysm
- Ischemic deficit
- Thrombo-embolic events
- Intraoperative rupture
- Parent artery occlusion
- Collapsed coils
- Coil migration
- Coil malposition

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	Coil embolization for aneurysms
i. At the time of Pre-authorization	
Clinical notes including indication of implant requirement, evaluation findings along with admission Glasgow coma scale score, and planned line of treatment	Yes
CT/MRI Brain / Digital Subtraction Angiography (DSA)	Yes
Complete blood count, Prothrombin time (PT)/INR	Yes
ii. At the time of claim submission	
Detailed Indoor case papers (ICPs)	Yes

Detailed Procedure / operative notes	Yes
Intra-operative photographs (optional)	Yes
Post-op Glasgow coma scale score documentation	Yes
Implant details Invoice/barcode (coils/balloon/stent)	Yes
Post-procedure check angiogram	Yes
Detailed discharge summary	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 with Glasgow coma scale score, indication for procedure/implant and planned line of treatment?
- Did the patient present with fainting or sudden loss of consciousness, seizure, vomiting, blurred vision, changes in speech, severe headache?
- Did CT/MRI/DSA 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 DSA imaging indicative of surgery?
- Implant (coils/balloon/stent) invoice/barcode submitted?
- Did post-procedure check-angiogram show coils/balloon/stent?
- 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:



- a. Was clinical presentation and imaging indicative of surgery? Yes
- b. Was there any evidence of coagulopathies? No
- c. Was there an evidence of?
 - a. Aneurysm more than 10mm in diameter
 - b. Aneurysm neck greater than or equal to 4mm

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

References

1. Campos JK, Lien BV, Wang AS, Lin LM. Advances in endovascular aneurysm management: coiling and adjunctive devices. *Stroke Vasc Neurol*. 2020;5(1):14-21. Published 2020 Mar 15. doi:10.1136/svn-2019-000303
2. Standard Treatment Guidelines Interventional Radiology. Ministry of Health and Family Welfare. Govt. of India. Intracranial Aneurysm. Page 22.
3. Standard Treatment Guidelines. Neurosurgery. Health & Family Welfare Department. Government of Maharashtra
4. Medical Advisory Secretariat. Coil embolization for intracranial aneurysms: an evidence-based analysis. *Ont Health Technol Assess Ser*. 2006;6(1):1-114.