



Guidance document for PM JAY package

Aortic Root Replacement Surgery

Procedures covered: 5

Specialty: CTVS

Package name	Procedure name	HBP 1.0 code	HBP 2.0 code	Package price (INR)
Aortic Root Replacement Surgery	Bentall procedure	S1300040	SV014A	1,50,000 + Implant/graft cost
Aortic Root Replacement Surgery	Aortic Dissection	New Package	SV014B	1,50,000 + Implant/graft cost
Aortic Root Replacement Surgery	Aortic Aneurysm	New Package	SV014C	1,50,000 + Implant/graft cost
Aortic Root Replacement Surgery	Valve sparing root replacement	New Package	SV014D	1,50,000 + Implant/graft cost
Aortic Root Replacement Surgery	AVR + Root enlargement	New Package	SV014E	1,50,000 + Implant/graft cost

ALOS: 10 days

Minimum qualification of the treating doctor:

Essential: M.Ch./DNB/Equivalent (in Cardiothoracic Surgery)

Special empanelment criteria/linkage to empanelment module: Cardiothoracic Surgery OT

Disclaimer:

For monitoring and administering the claim management process of **Aortic Root Replacement Surgery**, 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:

The surgical management of aortic root pathology is complicated and challenging. The anatomy of the aortic root is the basis of what leads to complex problems needing surgical correction including aortic valve repair, aneurismal disease of the sinuses and root, dissection of the ascending aorta, in addition to other surgically correctable disorders.

Aortic root pathology

- **Connective tissue disorders**

Connective tissue disorder is among the most common non-infective etiology of aortic root pathology. Marfan's syndrome, Ehlers-Danlos syndrome and Loeys-Dietz syndrome predominantly involve the elastic aortic root. Patients with vascular type of the Ehlers-Danlos syndrome are prone to aortic dissection rather than aneurysm, while patients with Loeys-Dietz syndrome are liable to have aortic aneurysm and dissection at younger age.

- **Bicuspid aortic valve**

Bicuspid aortic valve (BAV) is present in 1–2% of the population; almost 40% also have thoracic aortic dilatation at the time of presentation.

- **Inflammatory etiology**

Giant cell arteritis and Takayasu arteritis are rarer causes of aneurysmal dilatation/aortic dissection.

- **Cystic medial necrosis**

Cystic medial necrosis (CMN) is a pathological term that is characterized by the formation of cyst like lesions in the medial layer of the large arteries with accumulation of basophilic substances.

- **Acquired**

The most common acquired condition of the aortic valve is calcific valvular disease. This typically leads to aortic stenosis but can also cause a mixed pathology of both stenosis and regurgitation.

Aortic root aneurysm

The aortic root aneurysm should be operated when there is risk /presence of rupture, significant aortic regurgitation, coronary compromise, airway compression, and endocarditis.

Aortic dissection

- Acute aortic dissection is a high-risk aortic catastrophe which occurs in 5–30/1,000,000 patient annually.
- Aortic dissection is classified according to the time after the start of symptoms, being acute if the time frame between the onset of symptoms and presentation is less than 14 days, and chronic if this period is more than 14 days.
- A more functional classification was introduced by the Stanford University; type A if the dissection involves the ascending aorta, type B if it does not.

- The devastating complications that may occur with aortic dissection including organ malperfusion syndromes, acute aortic regurgitation, pericardial tamponade and stroke.
- Surgery is currently the gold standard for acute care of type A aortic dissection

Clinical features

- Most patients with aortic root pathology are asymptomatic, with the exception of patients who present with endocarditis (sepsis, congestive heart failure) or aortic root destruction secondary to acute type A aortic dissection (severe chest pains, asymmetric pulses, congestive heart failure).
- The age range of presentation is very broad (twenties to eighties) and is dependent on the underlying pathology.
- Certain patients will have characteristic stigmata of connective tissue diseases such as Marfan syndrome.

Diagnostics

- The workup for candidates for aortic root replacement includes echocardiography to estimate ventricular function and aortic valve function and assess for the possibility of aortic valve preservation.
- Coronary catheterization may be performed in selected high-risk patients
- Thin slice computed tomography (CT) or magnetic resonance imaging (MRI) scanning will provide the necessary information about the anatomy of the aneurysm.
- A careful oral examination or dental consultation is very important to prevent postoperative prosthetic valve infection.

Treatment

- Aortic root replacement options include composite valve-graft, separate valve-graft, xenograft tissue, homograft, pulmonary autograft (Ross procedure), and valve-sparing aortic root replacement.
- The decision to use each one of these options is dependent on patient age and valve preference, comorbid conditions, the condition of the native aortic valve, and contraindications to the use of anticoagulants.

The Bentall surgery is indicated for the following conditions of the aorta:

Aortic valve dysfunction with aortic root aneurysm or dissection

Aortic valve replacement (AVR) + Root enlargement is indicated:

- Small aortic root and severe aortic stenosis (It's based on valve size as per body surface area. Z value is used to estimate appropriate size of valve as per BSA. If unable to insert that size valve, then root enlargement is done)

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	Bentall procedure	Aortic Dissection	Aortic Aneurysm	Valve sparing root replacement	AVR + Root enlargement
i. At the time of Pre-authorization					
Clinical notes including evaluation findings, indication of implant/graft requirement, and planned line of management	Yes	Yes	Yes	Yes	Yes
Chest Xray	Yes	Yes	Yes	Yes	Yes
Echo/Doppler report	Yes	Yes	Yes	Yes	Yes
CT/MRI/ Angiogram	Yes	Yes	Yes	Yes	Yes
ii. At the time of claim submission					
Detailed Indoor case papers (ICPs)	Yes	Yes	Yes	Yes	Yes
Detailed Procedure / Operative notes	Yes	Yes	Yes	Yes	Yes
Post procedure stills of ECHO with report	Yes	Yes	Yes	Yes	Yes
Implant/Graft (if artificial graft is used) details - barcode/invoice	Yes	Yes	Yes	Yes	Yes
Detailed Discharge Summary	Yes	Yes	Yes	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):

- a. Clinical notes – all vitals, detailed history, symptoms, signs, physical examination, indication for procedure, planned line of treatment, and advice for admission?
- b. Did the Echo/ Doppler report confirm the diagnosis?

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

- a. Are the detailed ICPs with daily vitals and treatment details?
- b. Are the detailed procedure / Operative Notes available?
- c. Does the Post procedure still of ECHO show repair of the defect?
- d. Was Implant or graft (if artificial graft used) invoice/barcode details available?
- e. Is the Discharge summary with follow-up advise at the time of discharge?

PART III: GUIDELINES FOR TRANSACTION MANAGEMENT SYSTEM (TMS)

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. Did Echo/ Doppler report confirm the diagnosis? Yes
- II. Was the clinical presentation and imaging indicative of surgery? Yes

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

References

1. David D. Yuh, Luca A., Vricella Stephen Yang, John R. Doty. John Hopkins Textbook of Cardiothoracic Surgery. Second Edition. 2014
2. B. Goslin and R. Hooker (December 5th 2012). Surgical Management of the Aortic Root, Current Concepts in General Thoracic Surgery, Lucio Cagini, IntechOpen, DOI: 10.5772/51831. Available from: <https://www.intechopen.com/books/current-concepts-in-general-thoracic-surgery/surgical-management-of-the-aortic-root>
3. Salah E. Altarabsheh, Salil V. Deo and Yakov E. Elgudin (December 13th 2019). Aortic Root Reconstruction, Cardiac Surgery Procedures, Andrea Montalto, Antonio Loforte and Cristiano Amarelli, IntechOpen, DOI: 10.5772/intechopen.86034. Available from: <https://www.intechopen.com/books/cardiac-surgery-procedures/aortic-root-reconstruction>