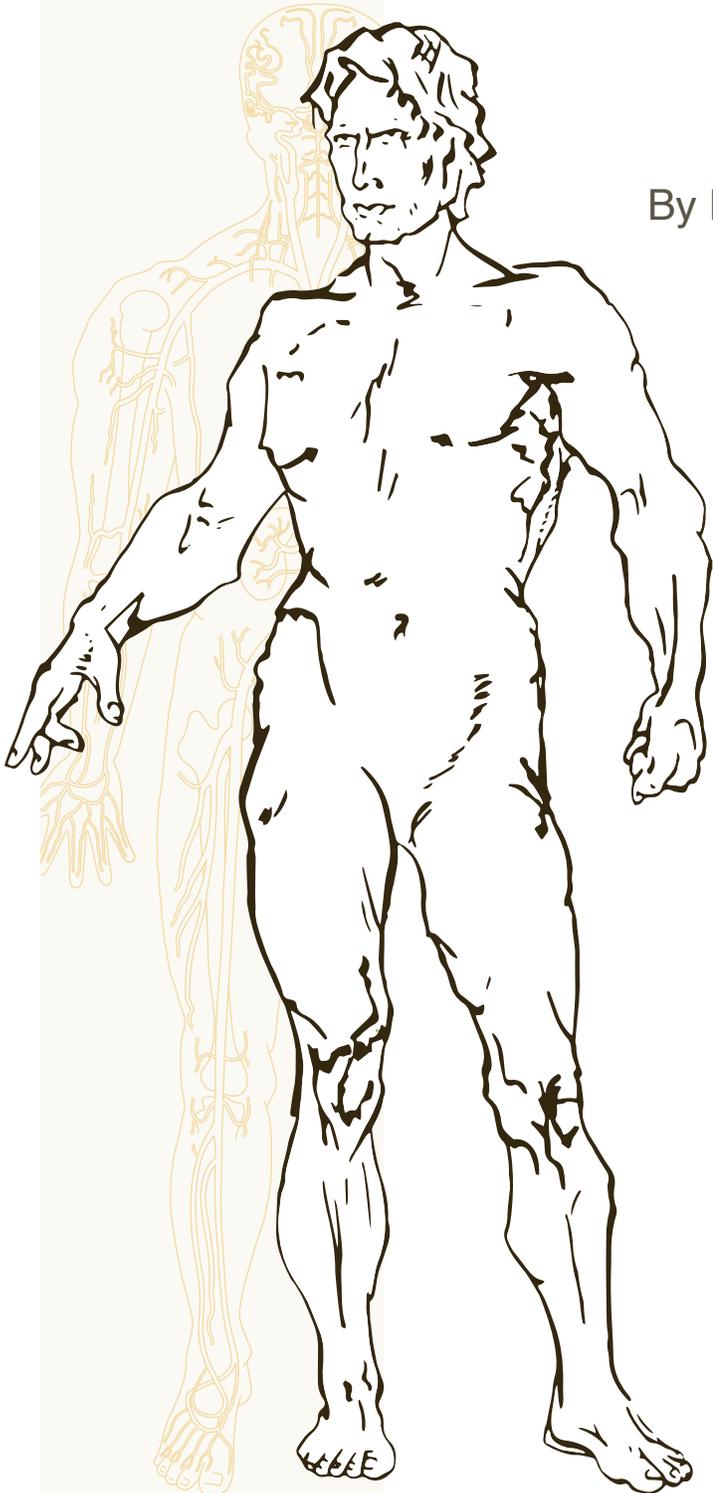


Dr. Z's Medical Coding Series

Cardiothoracic Surgery Coding Reference



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Great Vessels and Heart Procedures

PROCEDURE:

Wounds of the great vessels and heart are usually secondary to trauma: penetrating, blunt, or iatrogenic. The great vessels bring blood into or out of the heart. They include the aorta, superior vena cava, inferior vena cava, pulmonary artery, and pulmonary veins. Blunt injuries are most commonly secondary to motor vehicular accidents (MVAs) or falls. Knife wounds may involve great vessels such as the pulmonary arteries, other major arteries, and veins, as well as the heart. Diagnosis of heart, aortic, or great vessel injury may be by chest x-ray signs, CT scan, MRA, transesophageal echocardiogram, or contrast angiography. Patients often have multiple associated injuries. Open repair of the aorta or great vessels may be with direct suture technique or by insertion of an interposition graft. Options include clamp and sew, cardiopulmonary bypass, or lower body perfusion techniques (shunts) to add spinal cord and visceral protection against ischemia during the aortic cross clamping. Repair of cardiac wounds may be with or without cardiopulmonary bypass. Cardiomy involves opening of the heart for exploration and includes removal of foreign body or thrombus. Percutaneous suction removal of cardiac thrombus or vegetations with reinfusion of the aspirated blood may be performed.

CLINICAL INDICATION:

Repair is usually indicated when discovered to prevent life threatening hemorrhage or later complications such as delayed rupture, pseudoaneurysm formation, and embolization. Cardiomy for removal of foreign body, thrombus, or vegetations. Percutaneous removal or debulking of thrombus or vegetations.

CODES:

PROCEDURE DESCRIPTION	CPT CODE	ASSISTANT SURGERY	GLOBAL SURGERY	PO-SURGEONS	PC	CON RVU
Repair of cardiac wound; without bypass	♦33300	Allowed	90 days	Paid with Documentation	N/A	44.97
Repair of cardiac wound; with cardiopulmonary bypass	♦33305	Allowed	90 days	Paid with Documentation	N/A	76.93
Cardiomy, exploratory (includes removal of foreign body, atrial or ventricular thrombus); without bypass	♦33310	Allowed	90 days	Paid with Documentation	N/A	20.34
Cardiomy, exploratory (includes removal of foreign body, atrial or ventricular thrombus); with cardiopulmonary bypass	♦33315	Allowed	90 days	Paid with Documentation	N/A	22.00
Suture repair of aorta or great vessels; without shunt or cardiopulmonary bypass	♦33320	Allowed	90 days	Paid with Documentation	N/A	18.54
Suture repair of aorta or great vessels; with shunt bypass	♦33321	Allowed	90 days	Paid with Documentation	N/A	20.81

PROCEDURE DESCRIPTION	CPT CODE	ASSISTANT AT SURGERY	GLOBAL SURGERY	CO-SURGEONS	APC	WORK RVU
Suture repair of aorta or great vessels; with cardiopulmonary bypass	♦33322	Allowed	90 days	Paid with Documentation	N/A	24.42
Insertion of graft, aorta or great vessels; without shunt or cardiopulmonary bypass	♦33330	Allowed	90 days	Paid with Documentation	N/A	25.29
Insertion of graft, aorta or great vessels; with cardiopulmonary bypass	♦33335	Allowed	90 days	Paid with Documentation	N/A	33.91
Transcatheter removal of debulking of intracardiac mass (eg, vegetations, thrombus) via suction (eg, vacuum, aspiration) device, percutaneous approach, with intraoperative reinfusion of aspirated blood, including imaging guidance, when performed	0644T	0	YYY	None	5192	0.00

♦ Inpatient-Only Procedure

Assistant at Surgery (0) = Not paid unless documentation for medical necessity submitted

YYY = The global period is set by the MDT.



CODING INSTRUCTIONS:

1. The above codes are for traumatic injury to the heart, aorta, or great vessels. Report the appropriate codes for congenital repairs, aortic or great vessel aneurysm repairs, or endograft repairs.
2. Report code 33300 for repair of cardiac wound without cardiopulmonary bypass. Report code 33305 if cardiopulmonary bypass is performed.

Report code 33310 for exploratory cardiotomy with cardiopulmonary bypass. Report code 33315 if cardiopulmonary bypass is performed.

Do not report code 33310 or 33315 in conjunction with another cardiac procedure unless completely separate cardiac incision is made to remove thrombus from the heart.

5. The exploratory cardiotomy codes include removal of foreign body or thrombus.

The great vessels for codes 33320-33335 include the aorta, superior vena cava, inferior vena cava, pulmonary artery, and pulmonary veins.

7. For suture repair of the aorta or great vessels, report code 33320 if performed without shunt or cardiopulmonary bypass (clamp and sew technique).
8. If a temporary shunt is utilized for suture repair of the aorta or great vessels, report code 33321 when performed without cardiopulmonary bypass. If performed with cardiopulmonary bypass, report code 33322.
9. Codes for repair of aorta or great vessels (33320-33322) are based on whether clamp and sew

technique is used versus utilization of distal perfusion techniques or cardiopulmonary bypass. The work value for shunts or bypass technique is included in the corresponding codes.

10. For insertion of a graft in the aorta or great vessels, report code 33330 if performed without shunt or cardiopulmonary bypass. If performed with cardiopulmonary bypass, report code 33335.
11. Exposure via thoracotomy or median sternotomy is included.
12. Do not report completion angiography.
13. Do not code for echocardiography if utilized.
14. Chest tubes inserted during surgery are not separately coded.
15. If an open arterial exposure is performed to create a conduit for cardiopulmonary bypass, it may be additionally reported with code 34714 (femoral), 34716 (axillary/subclavian), or 34833 (iliac). These codes may be reported in addition to codes 33305, 33315, 33322, and 33335.
16. Report code 0644T for the percutaneous removal of cardiac vegetations or thrombus. This code includes imaging, arterial access for venous catheter placement, and reperfusion of the aspirated blood. Cardiopulmonary bypass codes 33307–33369 may be reported when performed with 0644T.

EXAMPLE(S):

1) A patient is involved in a motor vehicular accident (MVA) with an injury caused by a deceleration type mechanism. Aortic disruption is diagnosed by CT scan. In the OR, a thoracotomy is performed with simple aortic cross clamping technique utilized. The cross clamp time is 24 minutes. Dissection reveals a partial transection and after debridement of the edges, decision is made to proceed with a primary repair (33322). There is no evidence of paraplegia preoperatively.

2) An MVA patient is diagnosed with an ascending aortic injury. Approach is via a median sternotomy. Cardiopulmonary bypass is performed (no additional code), and insertion of a Dacron graft is accomplished to complete the repair (33335). Chest tubes are placed during closure of the sternotomy (no additional codes).

3) A patient with pericardial effusion undergoes a pericardiocentesis. Frank blood is noted, so a pericardial drain is placed via a small incision (33047). Due to ongoing bloody drainage, decision is made to perform exploration. Median sternotomy is made, followed by incision of the pericardium. The cardiac perforation is identified, and cardiopulmonary bypass is instituted. The small perforation is oversewn with a figure of eight suture (33000).

REFERENCES:

AMA, *CPT Assistant*, Fall 91:7, Oct 10:12, Dec 10:12, Jun 18:11, Jun 22:19-22

AMA, *CPT Changes: An Insider's View*, 2018, 2022

CMS, 2007 Physician Voluntary Reporting Program (PVRP) Measure Specifications, 12/05/06

CMS, *Medicare Claims Processing Manual*, Chapter 12 – Physicians/Nonphysician Practitioners,
Section 40 – Surgeons and Global Surgery

HealthNow NY, Inc., Wounds of the Great Heart (23.4), 05/01/01

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Sinus of Valsalva Procedures

PROCEDURE:

The aortic and pulmonary valves are called the semilunar valves. The sinuses of Valsalva (also called aortic sinus) are made up of dilations/pouches of the aorta located behind the leaflets of the valves. Blood during the diastolic phase travels toward the heart and fills these sinuses, resulting in closure of the valve. Sinus of Valsalva fistula and aneurysms are rare, and usually arise from the right sinus. They are usually congenital, but may be acquired in patients with associated aortic wall disease such as infection, trauma, and connective tissue disorders (e.g., Marfan syndrome). They may be associated with other congenital heart disease such as ventricular septal defect (VSD), aortic valvular regurgitation, and bicuspid aortic valve. Aortico-left ventricular tunnel is also rare, and involves a tunnel connecting the ascending aorta to the left ventricle (less commonly to the right ventricle). Diagnosis is often made with clinical exam, transthoracic or transesophageal echocardiography, and sometimes heart catheterization (including aortography). Surgical repairs are performed with cardiopulmonary bypass and may include plication, resection, valve repair/replacement, aortic root replacement, and closure of VSD primarily or with a patch, if present. In aortico-ventricular tunnels, primary closure of the aortic opening is done with plication of the remaining tunnel, carefully avoiding the coronary arteries. Transcatheter closure techniques are being performed in select patients.

CLINICAL INDICATIONS:

Rupture of sinus of Valsalva aneurysms with hemodynamic compromise. These patients may present with sudden chest pain, dyspnea, and/or a loud murmur. Identification of these sinus of Valsalva fistulae/aneurysms and aortico-ventricular tunnels is usually indication for repair to prevent endocarditis, enlargement of the aneurysm, severe aortic regurgitation, and aorto-cardiac shunting with heart failure.

NOTES:

PROCEDURE DESCRIPTION	CPT CODE	ASSISTANT AT SURGERY	GLOBAL SURGERY	CO-SURGEONS	APC	WORK RVU
Repair sinus of Valsalva fistula, with cardiopulmonary bypass;	♦33702	Allowed	90 days	Paid with Documentation	N/A	27.24
Repair sinus of Valsalva fistula, with cardiopulmonary bypass, with repair of ventricular septal defect	♦33710	Allowed	90 days	None	N/A	37.50
Repair sinus of Valsalva aneurysm, with cardiopulmonary bypass	♦33700	Allowed	90 days	Paid with Documentation	N/A	27.26

♦ Inpatient-Only Procedure



CODING INSTRUCTIONS:

1. Report code 33702 for repair of sinus of Valsalva fistula.

2. Code 33710 includes repair of the fistula, as well as repair of the VSD. **Do not** submit an additional code for the septal defect repair.
3. Report code 33720 for repair of sinus of valsalva aneurysm.
4. Codes 33702, 33710, and 33720 include cardiopulmonary bypass when performed.
5. **Do not** code for chest tubes, mediastinal tubes, or temporary pacing wires. They are included if performed.
6. Aortotomy and subsequent closure are included.
7. Code for repair of the congenital heart defect if additionally performed.
8. If an open arterial exposure is performed to create a conduit for cardiopulmonary bypass, it may be additionally reported with code 34714 (femoral), 34716 (axillary/subclavian), or 34833 (iliac). These codes may be reported in addition to codes 33702-33720.

EXAMPLE(S):

A young patient with new onset dyspnea and murmur is workup with TTE and aortography, revealing a sinus of Valsalva fistula and VSD. Decision for surgery is reached and a median sternotomy with cardiopulmonary bypass and moderate hypothermia is performed. A sinus of Valsalva aneurysm arising from the right sinus has ruptured into the right ventricle. Aortic tear repaired, as well as the defect into the right ventricle (33710). The patient is weaned easily from cardiopulmonary bypass, and the sternum is closed. An uncomplicated post-operative course ensues.

REFERENCES:

MA, *CPT Assistant*, March 2018
 MA, *CPT Changes: An Assistant's View*, 2018
 Merriam-Webster Medical Dictionary

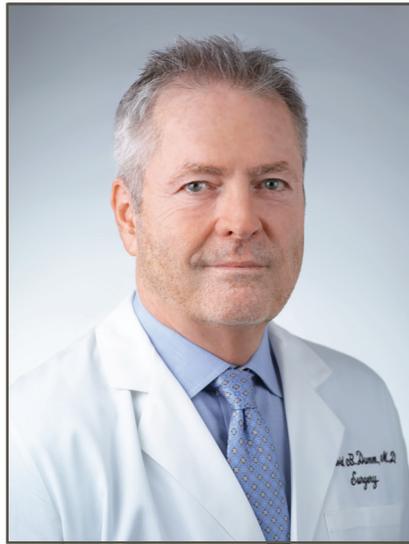
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Appendix A - Add-On Procedure Codes

15853	33257	33508	33768	34715	35390	43338
15854	33258	33517	33866	34716	35400	75565
32501	33259	33518	33884	34717	35500	76937
32506	33268	33519	33924	34808	35572	77001
32507	33277	33521	33929	34812	35697	93662
32607	33367	33522	33987	34813	35700	0570T
32608	33368	33523	33709	34820	37252	0899T
32604	33369	33530	33711	34813	37253	9007
33141	33370	33572	34713	34834	38746	
33225	33419	33746	34714	35306	43283	

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David B. Dunn, MD

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