Acute Aortic Dissection

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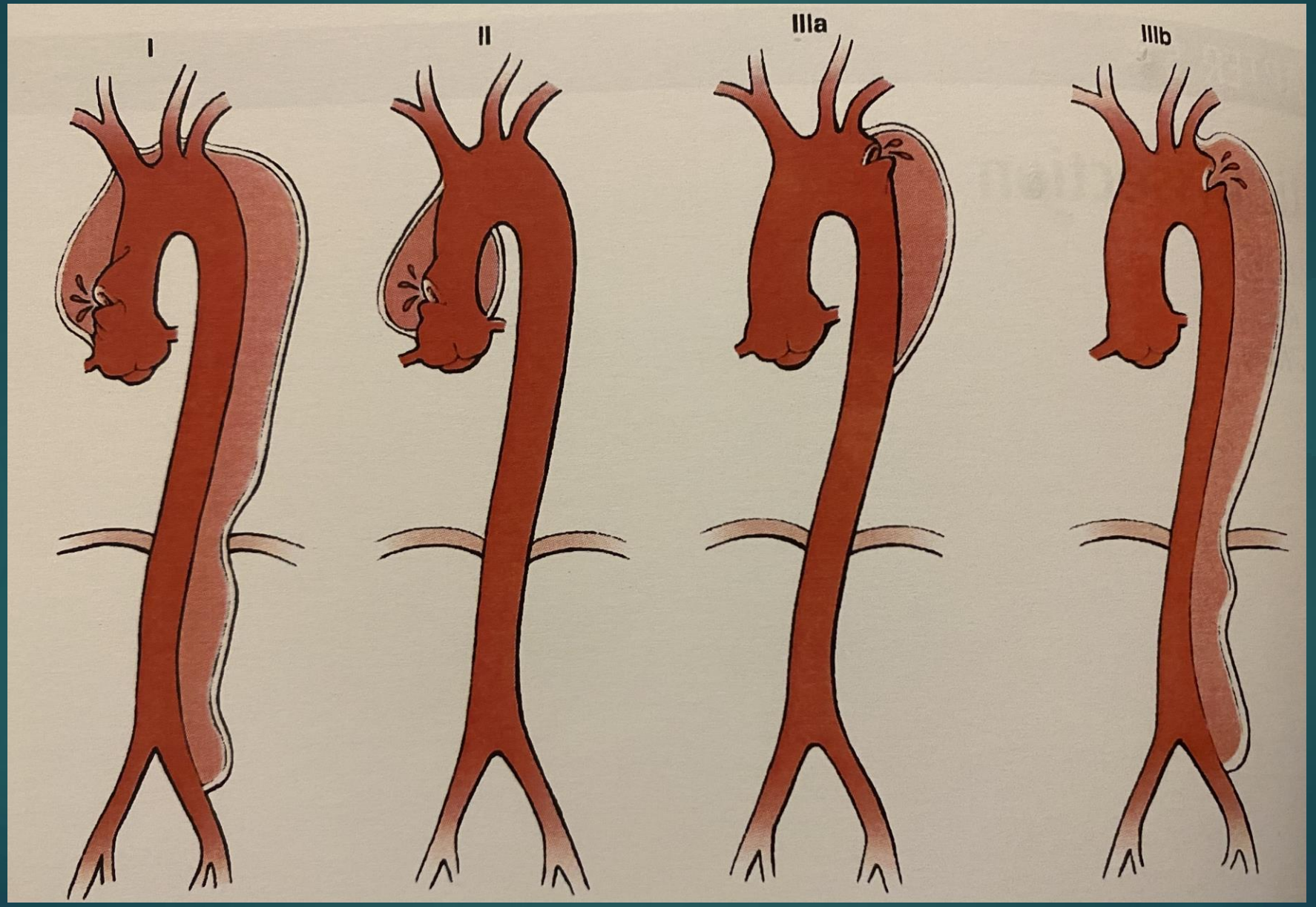
Cardiovascular Surgeon

Aortic Dissection

Thoracic aortic dissection occurs as blood flow is redirected from the aorta (true lumen) through on intimal tear into the media of the aortic wall (false lumen)

Classification

Acute	less than two weeks
Chronic	Greater than two months
Subacute	Between two weeks to two months


I
II
IIIa
IIIb

Incidence

Aortic dissection is the most frequently diagnosed lethal condition of the aorta.

Three times more frequent than rupture of an A.A.A.
prevalence 0.5 to 2.95 per 100000 per year.

Etilogy And Pathogenesis

Abnormality within the media

Cystic media necrosis

Intramural hematoma

Penetrating atherosclerotic ulcer

Hypertension is the mechanical force most often associated with dissection and is found in greater than 75% of cases.

Athero sclerosis is not a risk factor for aortic dissection except in preexisting;aneurisms or ulceration.

TABLE 50-2 Risk Factors for Type A and B Thoracic Aortic Dissection

Hypertension
Connective tissue disorders Ehlers-Danlos syndrome Marfan's disease Turner's syndrome
Cystic medial disease of aorta
Aortitis
Iatrogenic
Atherosclerosis
Thoracic aortic aneurysm
Bicuspid aortic valve
Trauma
Pharmacologic
Coarctation of the aorta
Hypervolemia (pregnancy)
Congenital aortic stenosis
Polycystic kidney disease
Pheochromocytoma
Sheehan's syndrome
Cushing's syndrome

clinical presentation

40% of patients die immediately, diagnosis of aortic dissection requires a high level of suspicion.

Sever chest pain, anxiety, midsternum, inter scapular region, migratory pain, ripping pain.dissection may also present with malperfusion of brain, limb, visceral.

Patients suffering acute dissection appear ill. Tachycardia is usually accompanied by hypertension in the setting of baseline essential hypertension and increased catecholamine levels from pain and anxiety.

Hypotension and tachycardia may result from aortic rupture, pericardial tamponade, acute aortic valve regurgitation, or even acute myocardial ischemia with involvement of the coronary ostia.

An abnormal peripheral vascular examination is present in an minority of patients with acute aortic dissection.

A complete central and peripheral neurologic exam is critical in that abnormalities are present up to 40%.

Syncope, paraplegia, superior vena cava syndrome, vocal cord paralysis, hematemesis, Horner's syndrome, hemoptysis, and airway compression may be seen as a result of local compression and mass effect.

Chronic aortic dissection is usually asymptomatic. It may be incidentally discovered following an asymptomatic acute dissection, most often in patients with preexisting aortic aneurysm.

Presenting complaints often include intermittent, dull chest pain, or even severe skeletal pain from erosion into the bony thorax with large or rapidly expanding aneurysms.

Aortic insufficiency may develop with chronic type A dissection and present with typical feature of congestive failure. Including fatigue, dyspnea.

Infrequently, chronic dissection may result in paralysis/paraplegia from loss of vital intercostal arteries or even distal embolization of thrombus or atheroma from the false lumen.

Diagnostic Studies

- ***Blood tests:***

Liver function tests , creatinine,myoglobin,and lactic acid may all be abnormal.

- **Chest x *ray:***

ischemic change are present in up to 20% of acute type A dissections.

- ***ECG :***

Chest x_ray Normal CXR does not rule out the diagnosis.

The diagnosis should be made rapidly with minimal distress for the patient.

- ***Diagnostic Imaging Study***:

Computed Tomography, echocardiography(TEE), MRI/MRA, Angiography.

Diagnostic Imaging

- Two imaging modalities currently meet these criteria and are used to diagnose acute aortic dissection: computed tomography(CT) and echocardiography.
- Helical CT scanning is widely available and is now the most frequently used test to diagnose acute aortic dissection.
- Transesophageal echocardiography(TEE) is currently second most frequently used study for making the diagnosis of acute aortic dissection.
- A negative transthoracicstudy should be complemented by a transesophageal study,which provides greater detail of the entire aorta.

Aortography was the first study used to diagnose acute dissection in 1939 and until recently was considered the gold standard for diagnosis.

Coronary angiography is not recommended given that the coronary ostia are involved in 10 to 20% of acute type A dissections and are easily evaluated at the time of surgery.

Coronary atherosclerosis is present in 25% of all patients with acute aortic dissection,but even in those patients repair of the dissection should take precedence.

MRI and MRA generate superior images reliably demonstrating aortic dissection.infact some consider this the gold standard imaging study given the published diagnostic accuracy.

Diagnostic Strategy

- Stable patients
- Unstable patients

Management Of Acute Type A Dissection

- Natural History
- Initial Medical Management
- Operative Indication

Natural History

- 50% of patients suffering acute type A aortic dissection are dead within 48 hours if untreated.
- Acute type A dissection carries a" 1% per hour "mortality for missed diagnoses.
- In one study in octogenerians,type A dissection was managed medically in 28% of patients for various reason with a 58% in_hospital mortality.

Initial Medical Management

- *Pain control*

Reduce catecholamine release and decrease the risk of rupture

Narcotic most commonly used

- *Hypertension Management*

Immediate goal remains to achieve a target systolic blood pressure between90 and 110 mm Hg with a target heart rate of less than 60 beats per minute.

After beta_ blocker treatment has been initiated,vasodilators such as sodium nitroprusside are used for further blood pressure control.

Loading doses for esmolol and sodium nitroprusside should be avoided to prevent hypotension.

Operative Indications

The goals of surgery in acute type A dissection are to prevent aortic catastrophe.

Aortic catastrophe includes:

1 Aortic rupture into pericardium or pleural space

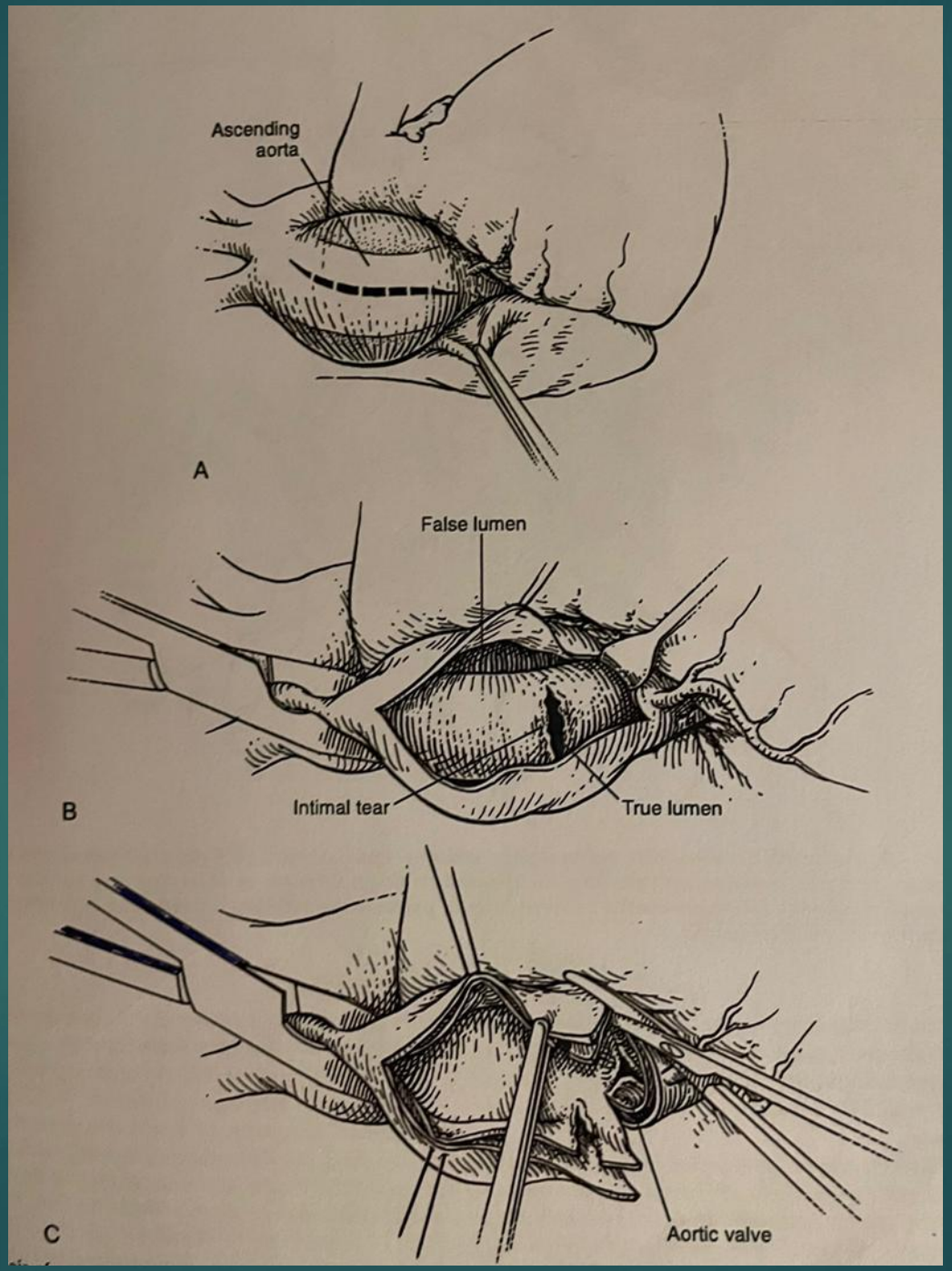
2 dissection and occlusion of the coronary ostia

3 progression to aortic valvular incompetence

The presence of ascending aortic involvement is an indication for operative management in all but the highest_risk patients.

1 patients greater than 80 years of age.

2 obtunded or comatose patients.(stroke or paraplegia are not contraindications to surgical correction.)


Ascending aorta
A
False lumen
B
Intimal tear
True lumen
C
Aortic valve

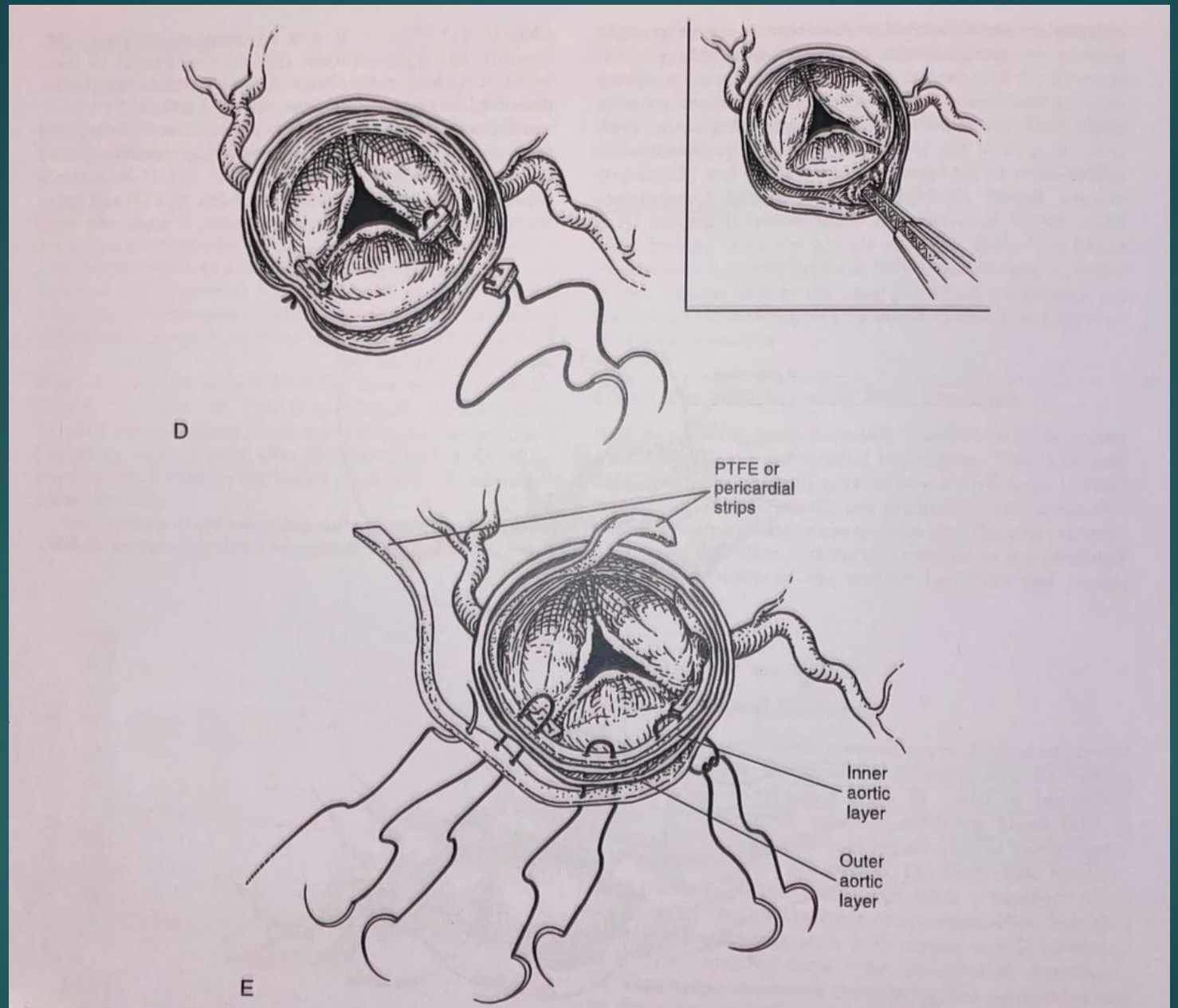
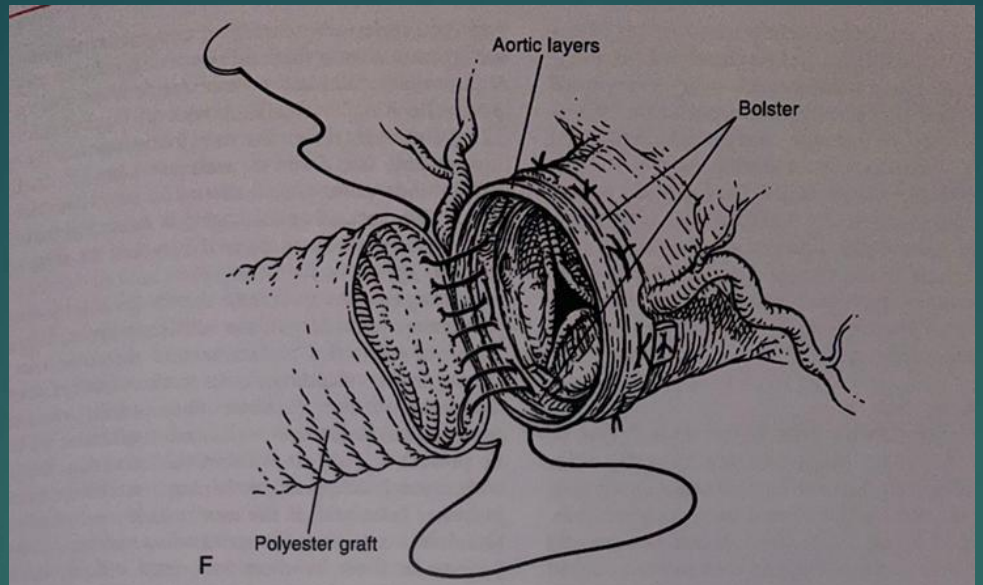


Figure 25-7, cont'd **D,** Pledgeted, double-armed, polypropylene sutures are placed across each detached commissure and through outer layer of aorta, and are tied over a second pledget. *Inset:* Gelatin-resorcinol-formaldehyde or other glue may be used to obliterate false lumen. **E,** Disrupted layers of aorta are approximated between strips of polytetrafluoroethylene (PTFE) felt or pericardium and are secured with multiple polypropylene mattress sutures.



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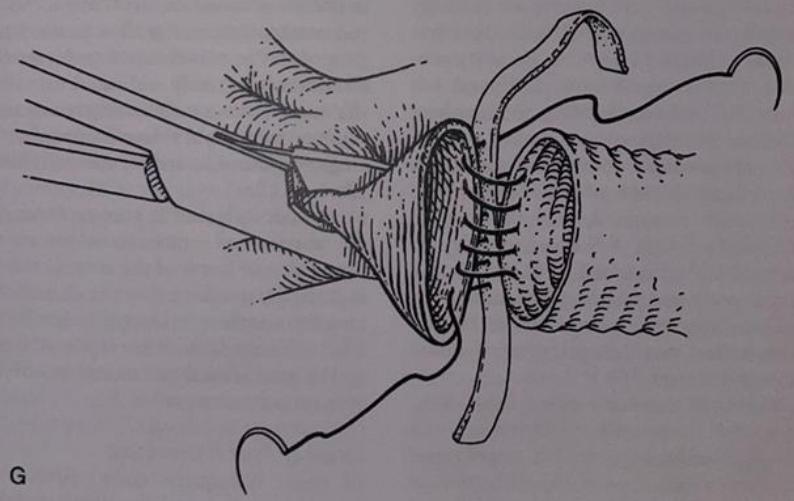
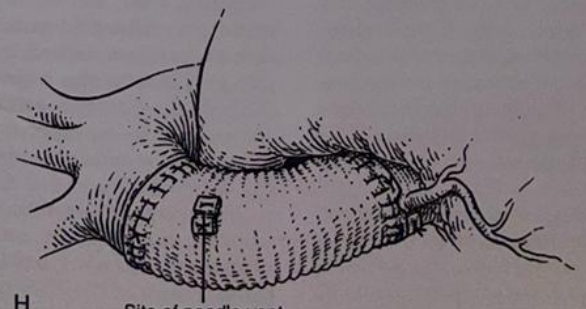


G



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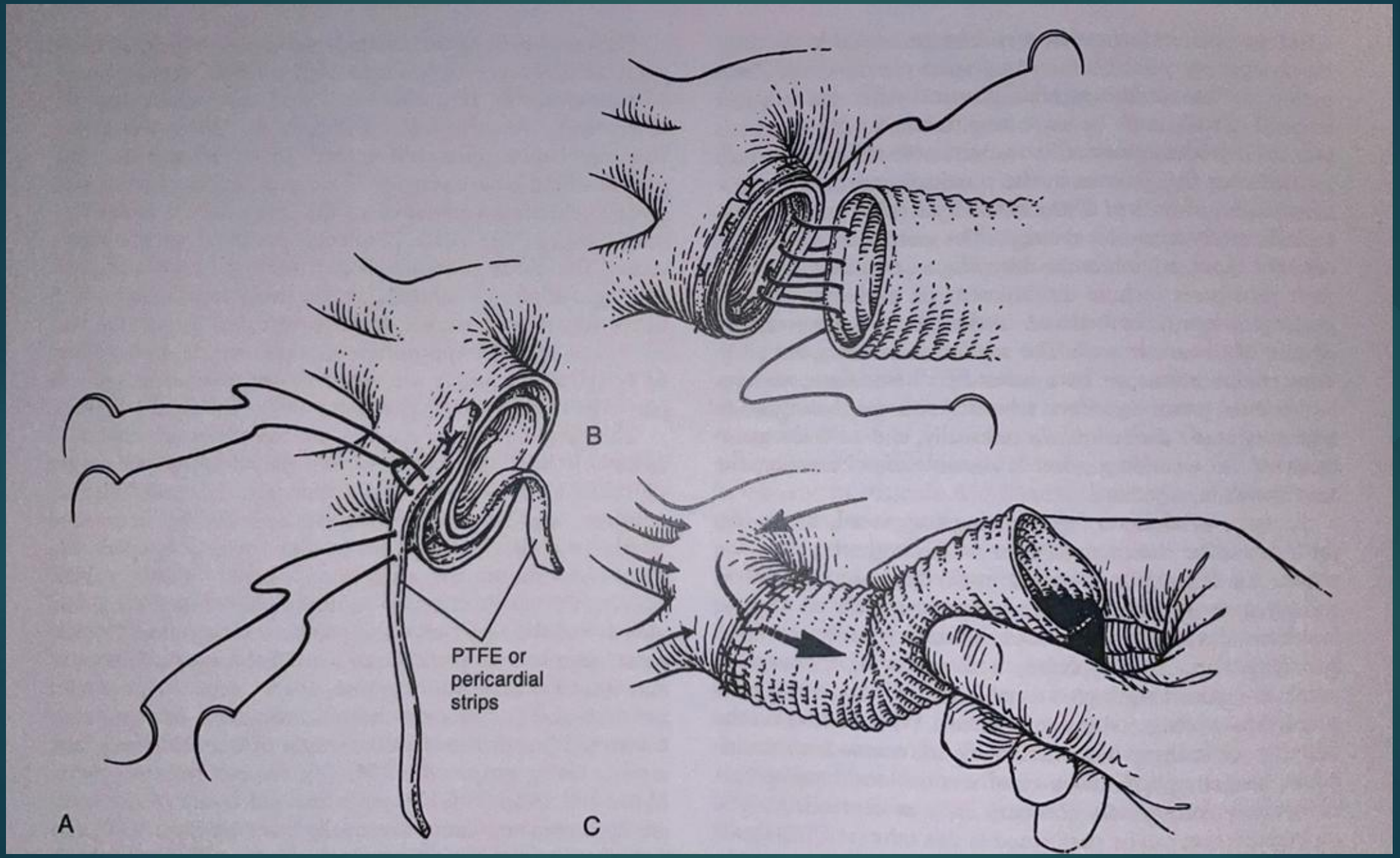
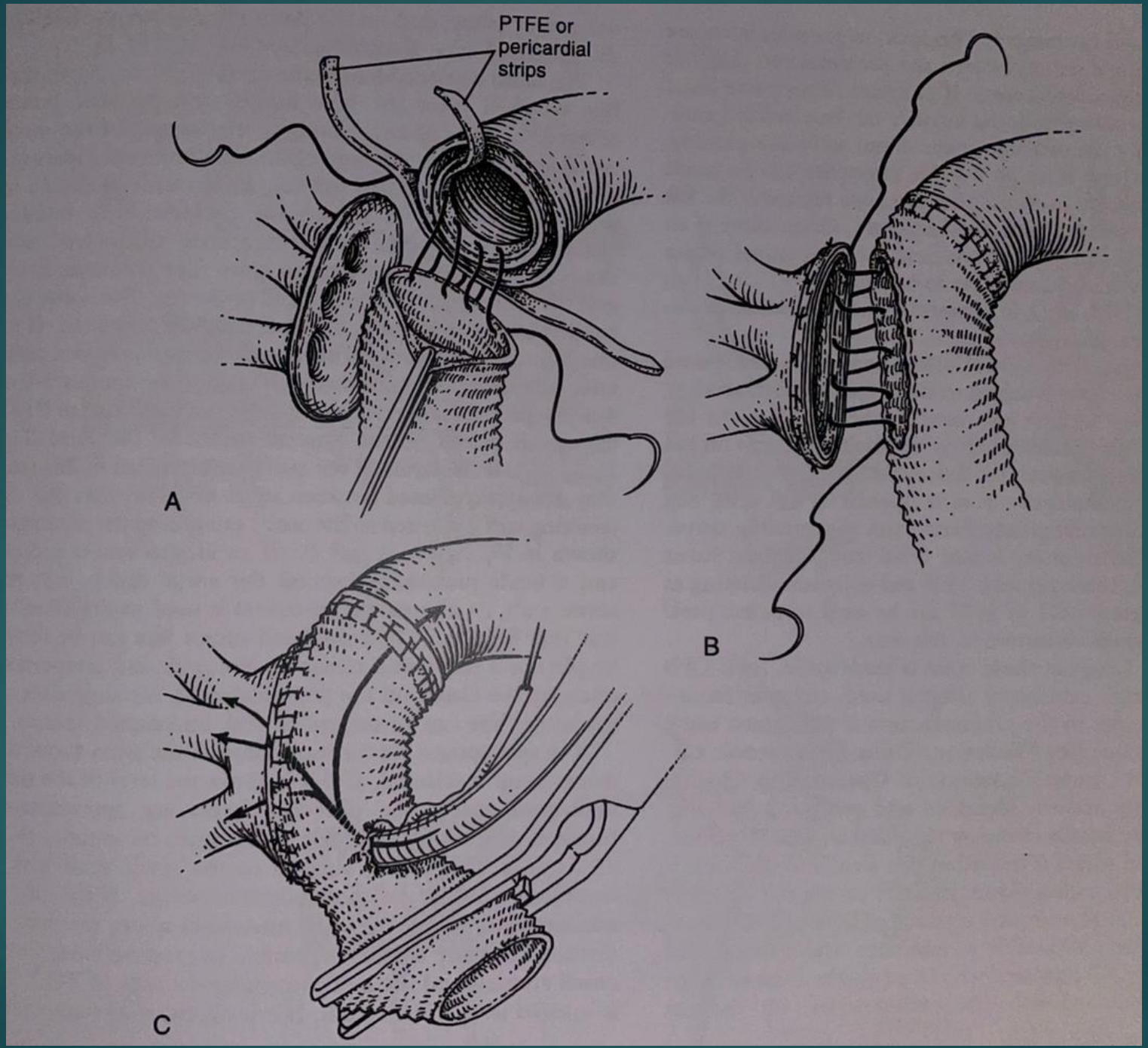

PTFE or
pericardial
strips
A
B
C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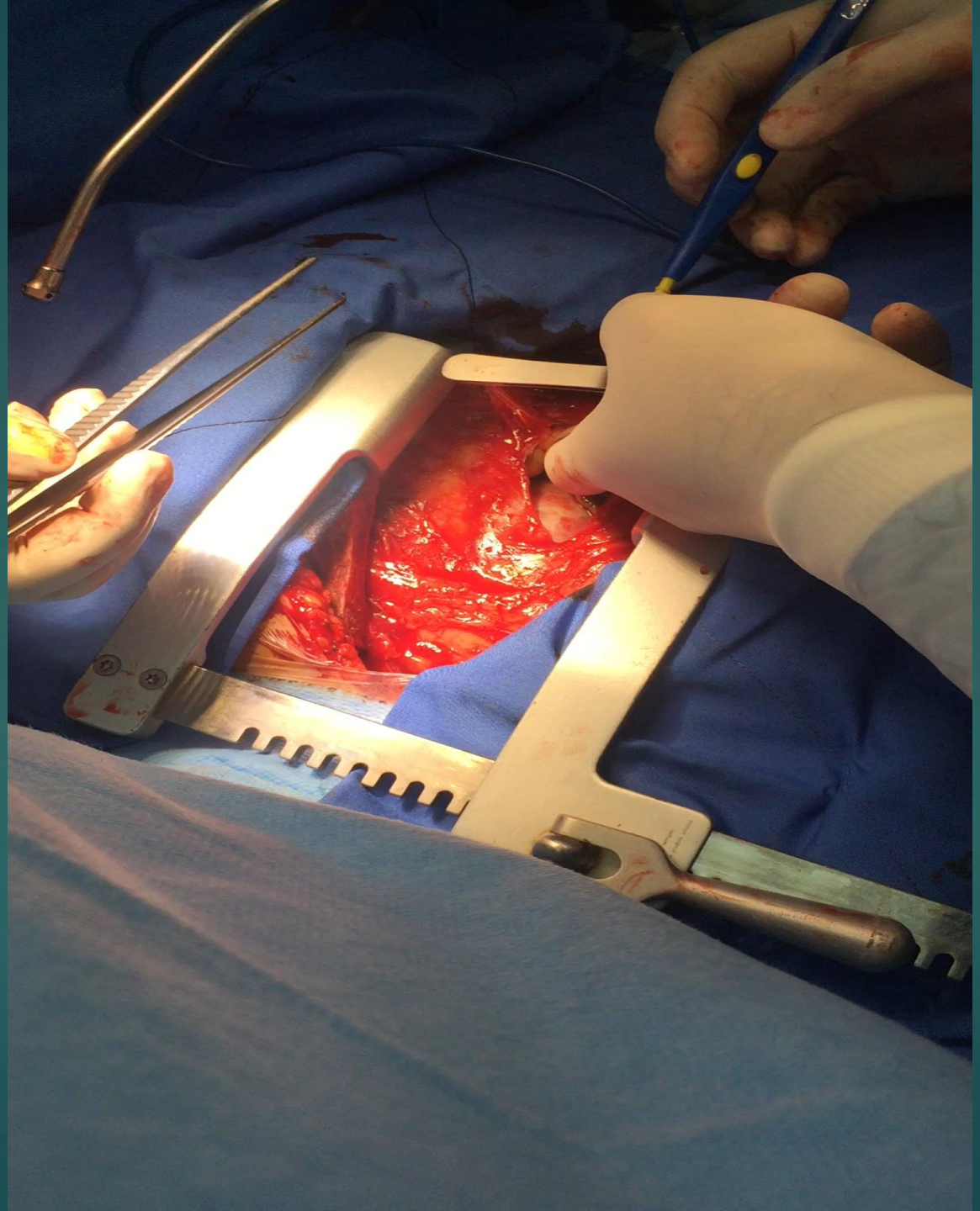
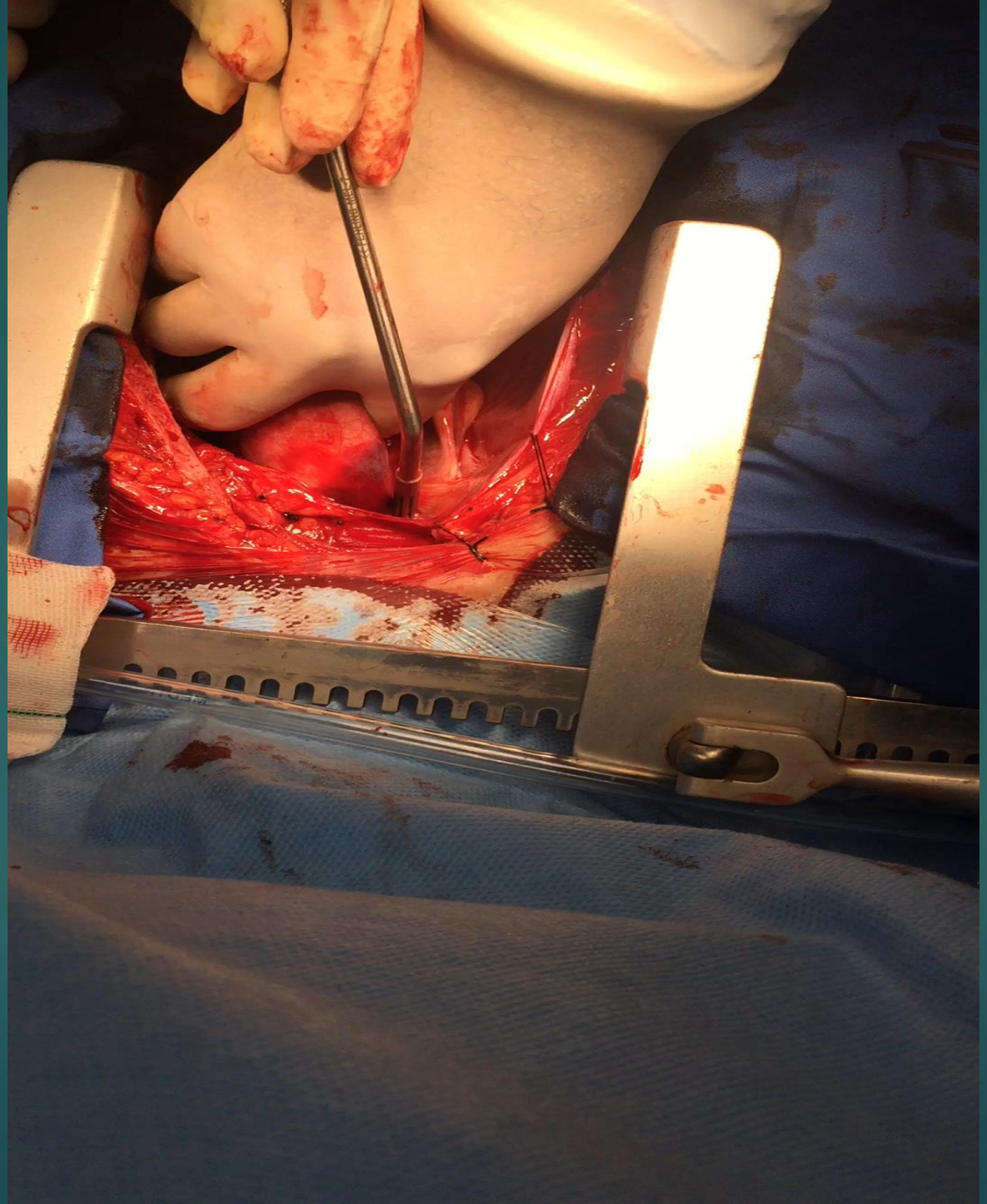
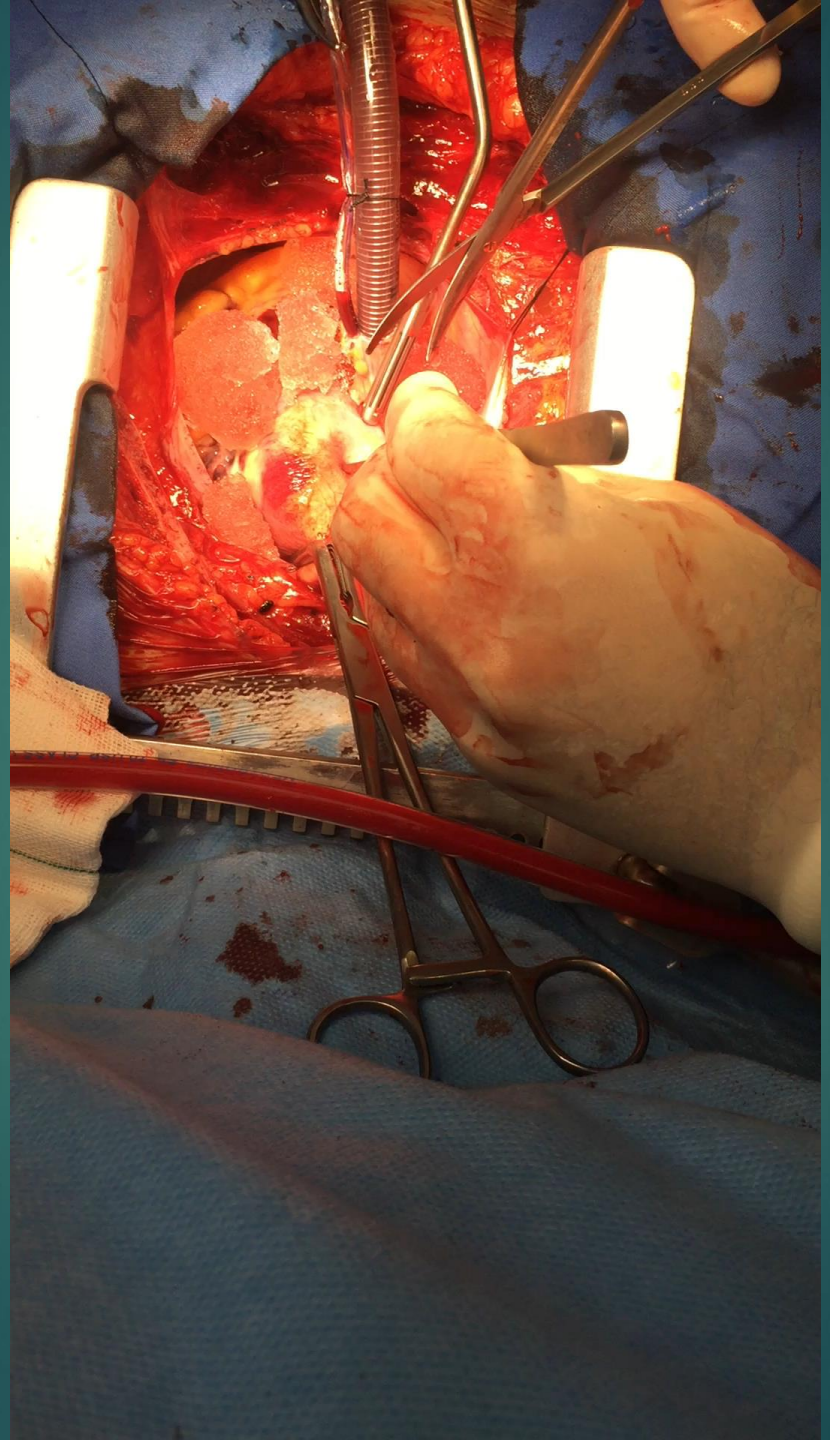
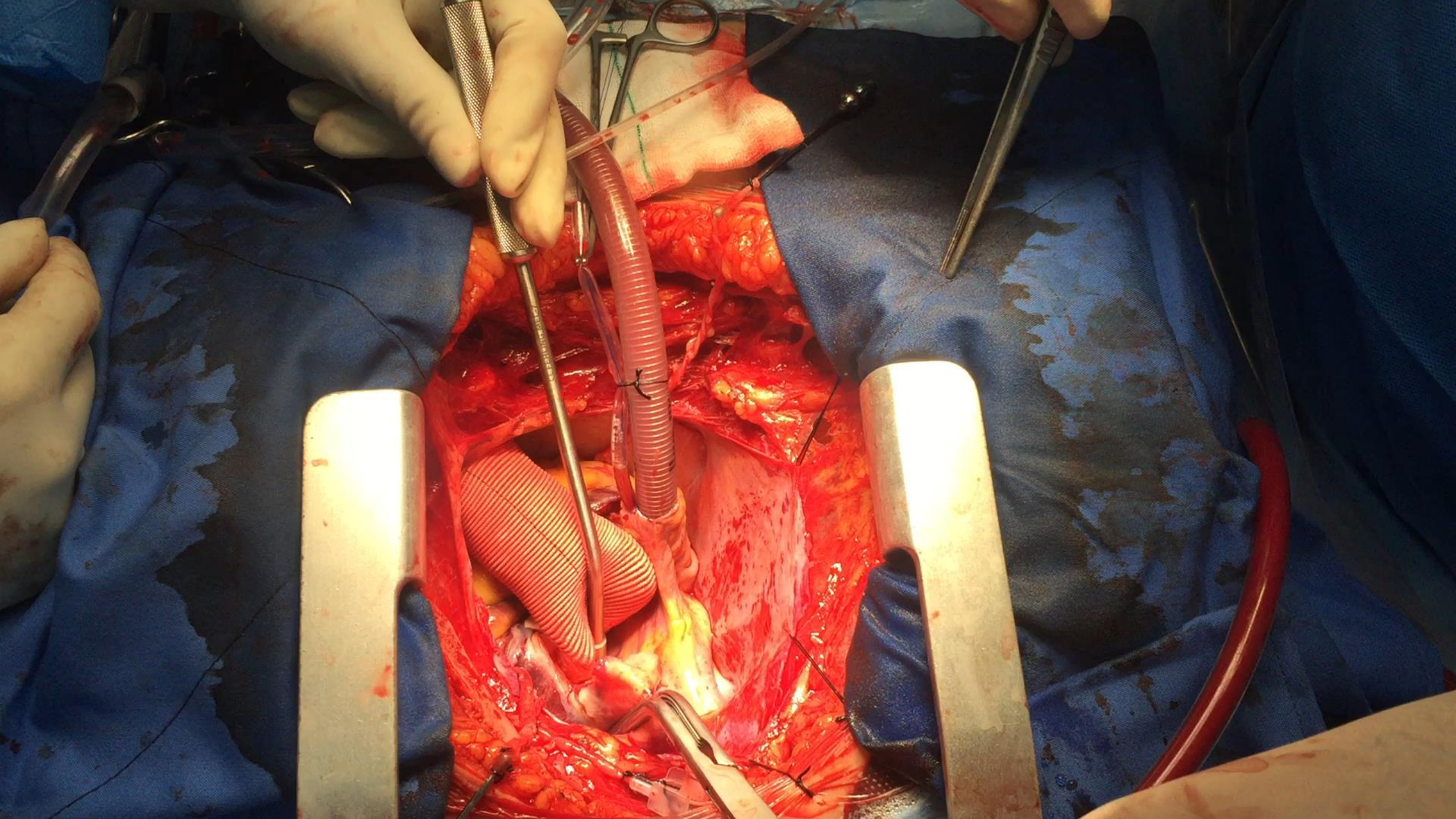
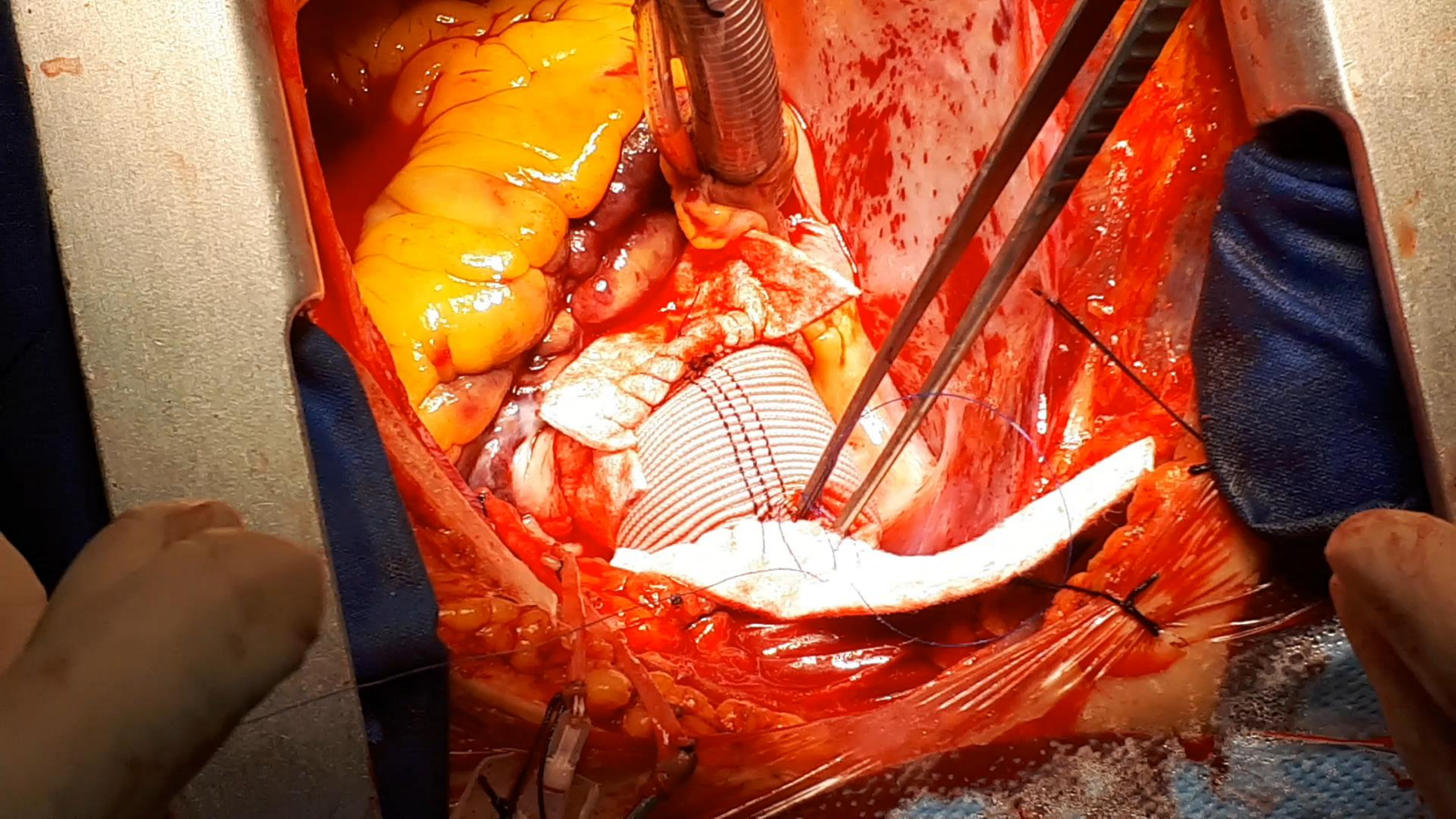
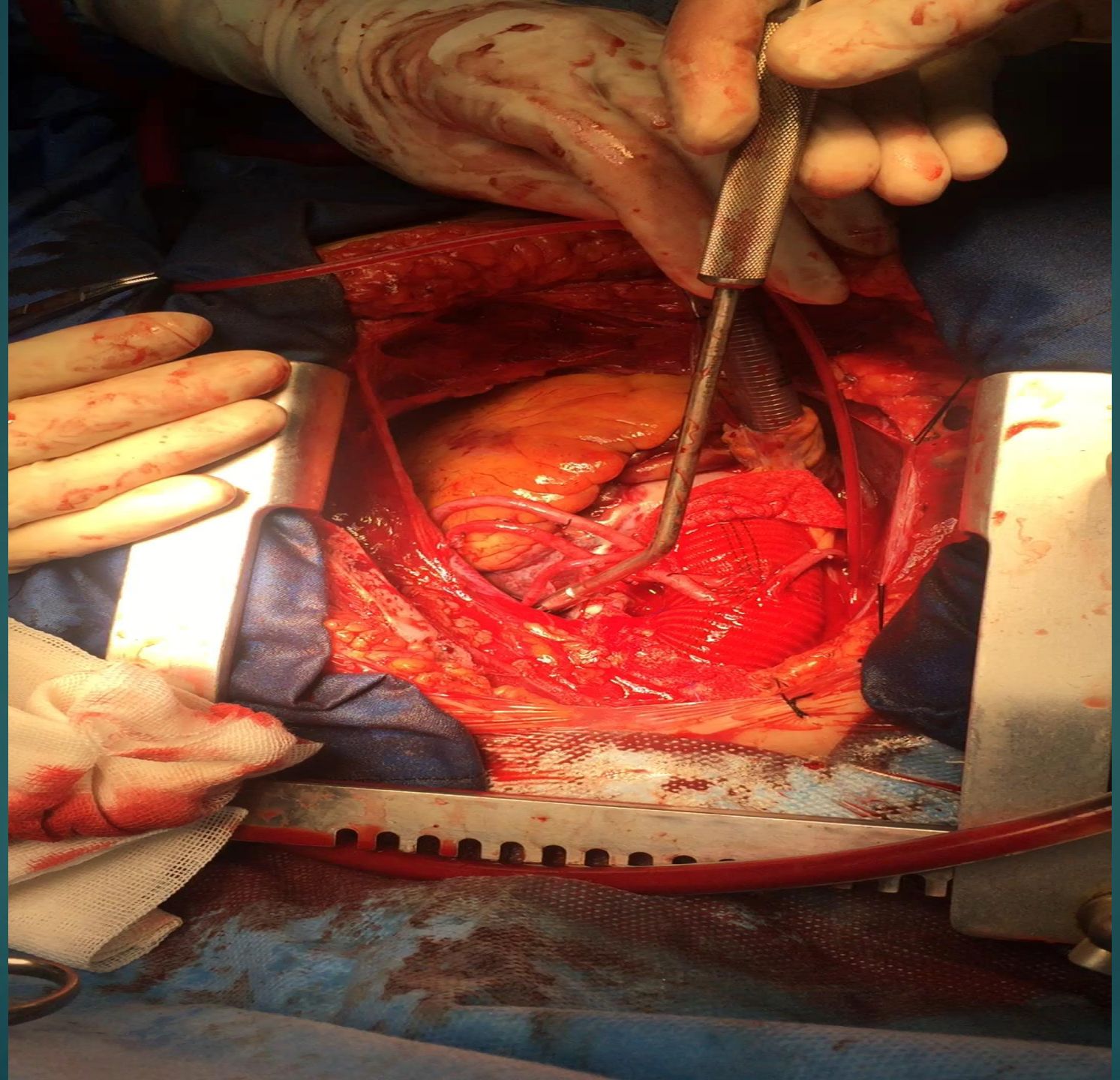


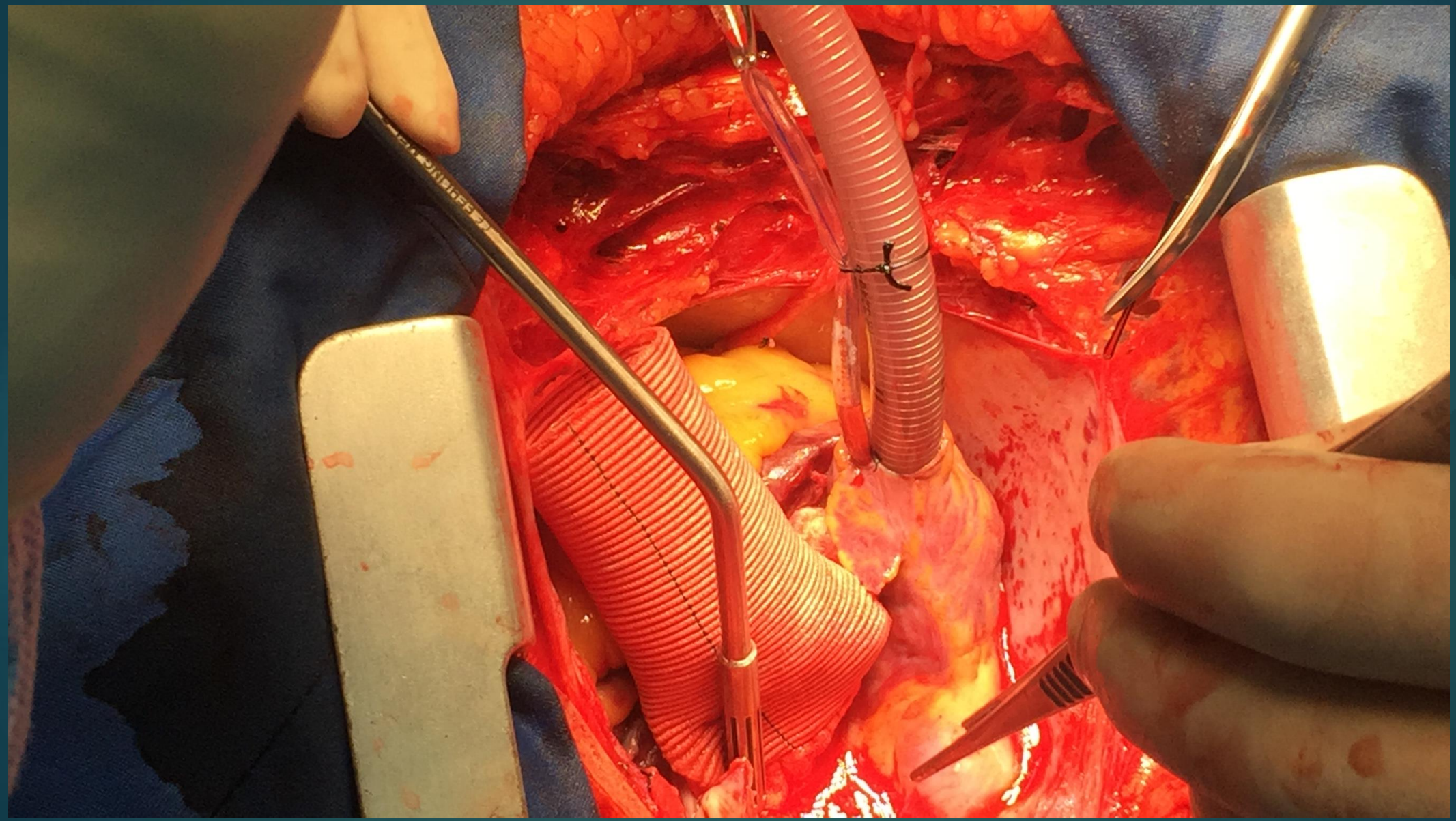












E

Chouardiography

2D, M-Mode Study
1 -chambers

دانشگاه علوم پزشکی و خدمات بهداشتی درمانی مازندران
شبکه بهداشت و درمان آمل
بیمارستان امام رضا (ع) آمل
اکوکـار دیوگـرافی

نام بیمار : سنا احمدزاده
تاریخ : ۹۵/۹/۲۴
پزشک معرف : دکتر صباغ
سابقه بیماری : .....

Dimennsions and Motions

- L Vr	mm	PWD	mm	FF | 2D:	WMA
LA : Si e		RV :			
Mass	mm	RA :		Ao .D:	mm
Clos				Epess :	mm

2 Valves

Aortic V.	Mitral V.	Tricuspid V :	Pulmonic V.
Normal : Box : mm	Normal : M V A cm^2	Normal :	Normal :
Thickened :	Prolaps:	Prolaps :	Prolaps :
Calcified :	Thickend :	Thickend :	Thickend :
other :	Calcified :	Calcified :	Calcified :
	other :	other :	other :

3 - Pericardium :

بیمارستان امام رضا (ع) آمل
واحد تخصصی

☐ Normal ☐ Effusion ☐ Thickened ☐ Calcified ☐ other

Color Doppler Study

Artic V.	Mitral V.	Tricuspid V.	Pulmonic V.
Normal Flow :	Normal Flow :	Normal flow :	Normal flow:
As :	MS :	TS :	PS:
Peak G : mmHg	Peak G mmHg	Peak G mmHg	Peak G mmHg
MeanG: mmHg	MeanG : mmHg	Mean G: mmHg	Mean G: mmHg
AVA :	MVA :	TVA :	TVA :
AI :	MR :	TR :	PI :
Other :	Diastolic dysfunction :	PAP :	Other :

Conclusion: nl LV size & preserved LV systolic funct (EF: 5.y.)
Inferior H.k
NL RV size & NL RV funct
NO MS/ mild MR
NO AS/ NO AI

Recomendation: Dilated AA (4,3cm)
mild LVH NO LV clot
NO PR

اکوکـار دیوگـرافی

A.IRH.5

وزارت بهداشت
The Ministry Of Health & medical Education
University of Medical Sciences and Health Services : دانشگاه علوم پزشکی و خدمات بهداشتی درمانی :
Hospital:

File Number : شماره پرونده : ۳۶۲۳۸

برگ شرح حال
MEDICAL HISTORY SHEET

Attending Physician: پزشک معالج : دکتر	Ward : بخش :	Name: نام :	Family Name: نام خانوادگی :
Date of Admission: تاریخ پذیرش : ۱۲/۹/۲۴	Room: اتاق :	Date Of Birth: تاریخ تولد : ۶۶ ساله	Father's Name: نام پدر :
	Bed: تخت : ۱		

Persenting Symptoms :

History of Peresent Illness : تاریخچه بیماری فعلی :
C.C : درد سینه
خانم 66 ساله HTN تحت درمان دارویی
smoker قبلی

Past Disease History : تاریخچه بیماری های قبلی :
Typical cp + تهوع و استفراغ
از شب گذشته که صبح مراجعه کرده

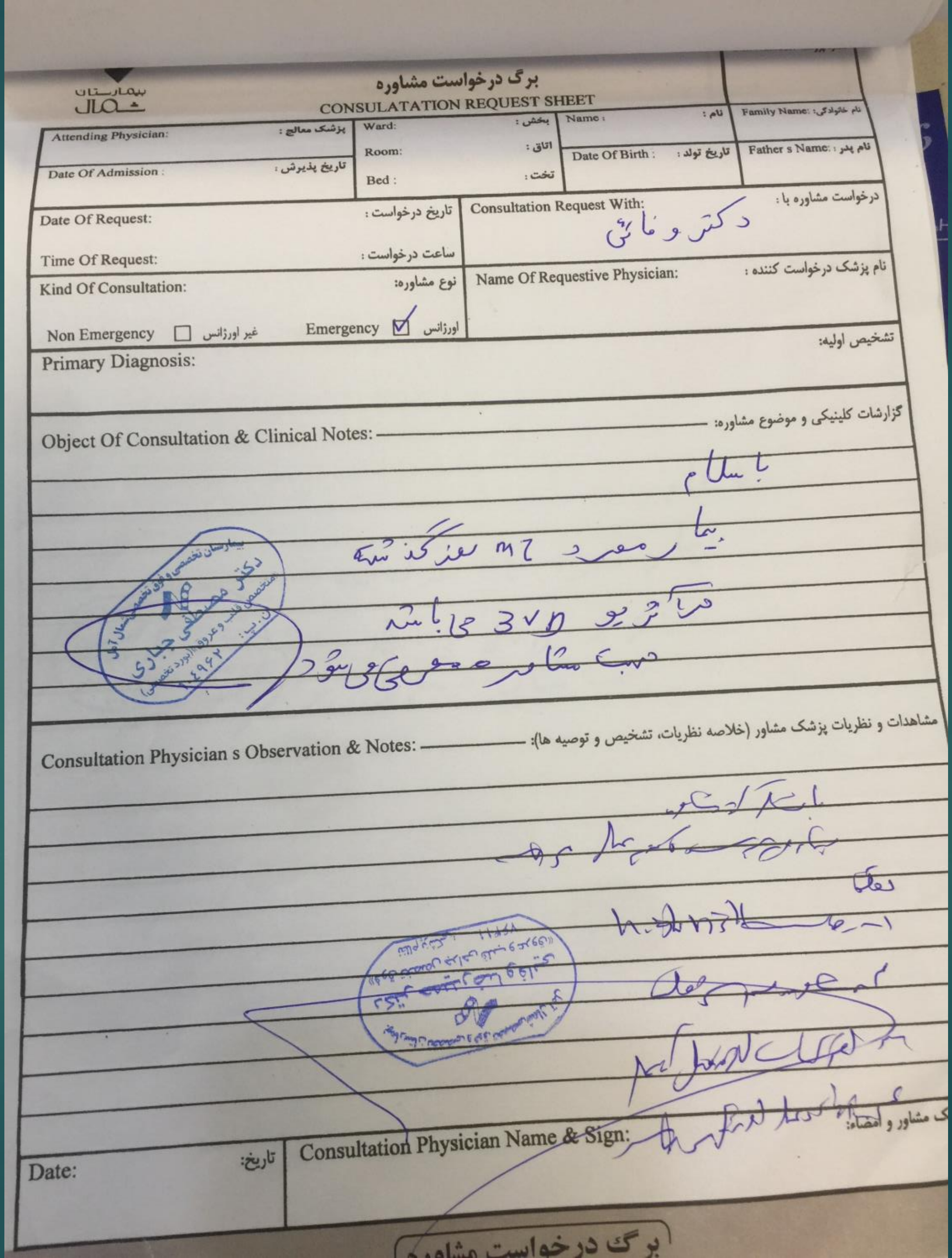
Current Drugtherapy & Other Addiction : داروهای در حال مصرف و سایر اعتیادات :
ST↑ در inferior

بیمارستان امام رضا (ع) آمل
واحد ترخیص

Allergy to : حساسیت به :
cp دارد کشتالینیکا

Family History : سوابق فامیلی :
تزریق SK نداشت
تشخیص: Acute STEMI
SK تزریق شد

Physical Examination & clinical Investigation : معاینات بدنی و بررسیهای بالینی :
Skin : ☐
Skull : ☐
Ear : ☐
Please Complete The Back of The Sheet : پشت صفحه را تکمیل کنید .



بیمارستان شمال

برگ درخواست مشاوره

CONSULATATION REQUEST SHEET

Attending Physician: پزشک معالج :	Ward: بخش :	Name: نام :	Family Name: نام خانوادگی :
Date Of Admission: تاریخ پذیرش :	Room: اتاق :	Date Of Birth: تاریخ تولد :	Father s Name: نام پدر :
	Bed: تخت :		

Date Of Request: تاریخ درخواست :

Time Of Request: ساعت درخواست :

Consultation Request With: درخواست مشاوره با : دکتر وفائی

Kind Of Consultation: نوع مشاوره:

Non Emergency ☐ غیر اورژانس — Emergency ☑ اورژانس

Name Of Requestive Physician: نام پزشک درخواست کننده :

Primary Diagnosis: تشخیص اولیه:

Object Of Consultation & Clinical Notes: گزارشات کلینیکی و موضوع مشاوره:

با سلام

بیمار مورد MI ... گذشته

... 3VD می باشد

جهت مشاوره معرفی می شود

Consultation Physician s Observation & Notes: مشاهدات و نظریات پزشک مشاور (خلاصه نظریات، تشخیص و توصیه ها):

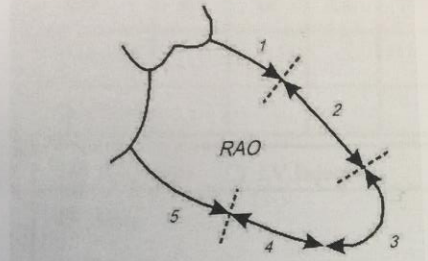
Date: تاریخ:

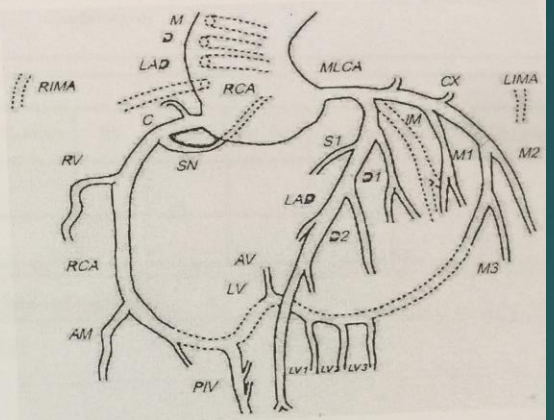
Consultation Physician Name & Sign: نام پزشک مشاور و امضاء:

برگ درخواست مشاوره

Patient's Name:	مینا احمد زاده	Serial Number:	P251461
Date of admission:	1397/09/25	Age:	66
Cardiologist:	MostafaJabari	Sex:	

AO Pressure	
LV Pressure	
LV EF	





Cath was performed via	RADIAL
Dominancy	
LV Wall motion	
LMT	had moderate lesion at distal
LAD	had significant lesion
Diagonal(s)	had significant lesion
LCX	had non significant lesion
OM(s)	had moderate lesion
Ramus	
RCA	had significant lesion with clot
PDA	
Grafts	
Others	
Diagnosis	severe 3VD
Recommendation	CABG

MostafaJabari

Cardio logist

گزارش آنژیوگرافی

Patient`S Name: احمدزاده

Coronary Angiography Report Sex: male female Age: /year Weight: /kg

Date of admission: / / Cardiologist:

Pressure and Saturation data:

Site	AO	LV	LA	PAW	PA.Main	RV	LA	RA.Mid	RA.High	SVC.LOW	SVC.High
Pressure											
Saturation											

LV Study by : ☐ LV Injection ☐ Echoeardiography

LV Size: LV EF: MR:

Regional Wall Motion:

Anglography Report:

Lm: had moderate distal lesion
LAD: had significant lesion
D: had significant lesion
Lcx: had non significant lesion
om: had moderate Lesion
RCA, had significant lesion with clot

severe 3VD

CABG

شمال

برگ انجام کاتتریسم و آنژیوگرافی ها

شماره پرونده:

نام خانوادگی: منیر نصیرزاده بخش: Cathlab شماره پرونده: ۰۰-۹۷-۰۲ تاریخ: ۹۷/۲۵

نوع کاتتریسم: ۹۰۸۲۰	حالت بیمار:	داروهای مصرفی:
کاتتریسم راست		
کاتتریسم چپ		
اندازه گیری فشارها		
کسیمتری		
آنژیوگرافی راست P.A. R.V.		
آنژیوگرافی چپ A.O. L.V.		
آنژیوگرافی کرونر		
پیس میکر موقت		
پیس میکر دائم		
انجام کارهای متفرقه		

پزشک انجام دهنده

پزشک دستیار

ملاحظات:

تکنسین مسئول

پرستار مسئول

بخش مدارک پزشک