DEPARTMENT OF CARDIOLOGY

20 YEARS OF OUR JOURNEY

Department of Cardiology

- **Dr. B V Manjunath** – Professor & HOD
- **Dr. R. Purushotham** – Associate Professor
- **Dr. Praveen J Shetty** – Assistant Professor
- **Dr. Prem Alva** – Paediatric Cardiologist
- Dr. Nithin Thomas Terence – Senior Registrar
- Dr. Praveen Kumar – DM Cardiology Resident
- Dr. Abhijeet Hiremath –DM Cardiology Resident

❖ Department Of Cardiology @ AJ Hospital was Started On ***FEBRUARY 8TH 2002***

By **Dr. B V Manjunath**

Dr. B. V. Manjunath

MD DM FACC FSCAI FESC FCSI FICC

Sr. Consultant Interventional Cardiologist

Achievements

1. Invited to attend International Conferences like
   - TCT Washington DC USA
   - PCR – Paris / Barcelona
   - Annual Conference of European Society of Cardiology
2. In the International panel of Cardiac drug Evaluation "CURRENT DRUGS" London U.K.
3. In the international panel of Indo French Interventional Cardiac Forum.
4. Faculty at "Vascular Interventions" conference At Cairo, Egypt August, 2004
5. Faculty at 3rd Asia pacific interventional conference At "Malaysia Live", Kaulalumpur, Malaysia July 2007.
6. Faculty at 3rd and 4th Advanced Cardiovascular therapeutics (ACT) at MMM, Chennai, July 2008 and July 2009
7. Invited and attended "Joint Interventional Meet" (JIM) at Rome, Italy, in Feb; 2009
8. Faculty at "Singapore Live" at singapore March 2009
9. Invited & attended "TCT 2009" at San Fransisco, USA in Sept 2009.
10. Faculty at National Cardiological Society of India (C.S.I) conference at Kochi December 2009.

Procedures Done in Department

Non Invasive :

- ✓ **Echo** : approx. 2500 / month
- ✓ **TMT** : approx. 300 / month
- ✓ **Holter** : 20 -25 / month
- ✓ **TEE** : 10 – 15 / month
- ✓ **Stress Echo**
- ✓ **Post Operative Echo**
- ✓ **Viability Studies** : PET FDG + Rest MPI
- ✓ **Coronary CT Angiogram**

Invasive Cardiac Procedures

- Coronary Angiograms & Angioplasties
- Pacemaker implantations
- Device Closures : ASD /VSD /PDA
- Valvuloplasties : Mitral /Aortic/Pulmonary
- Peripheral Angioplasties
- IVC Filter

- Renal Angioplasties
- Coarctoplasty with Stenting
- AAA Repair (EVR)
- ICD & CRT
- Shockwave IVL
- Embolisation of Arteries
- Coronary AV Fistula Closure

Academic Achievements

- **2004** – Started **PGDCC** Course

- **2006** – Started **DNB** Cardiology

Dr. Srikanth

Dr. Sudesh Shetty

2014 – Started DM Cardiology

- Dr. Gaurav Thakare - 2014
- Dr. Babhani Charan Sahoo - 2015
- Dr. Nitin Gudage - 2016
- Dr. Nithin Thomas Terence – 2018
- Dr. Praveen Kumar - 2020
- Dr. Abhijeet Hiremath - 2020

" 1st " done in Mangalore / Coastal Karnataka @ AJHRC

- 1st Angioplasty using Drug Eluting Stent - June 2002.
  (First in State)
- 1st Venous Bypass Graft angioplasty using Symbiot stent
- 1st Venous bypass graft angioplasty using protection device
- 1st Carotid angioplasty using protection device
- 1st to implant DDDR pacemaker

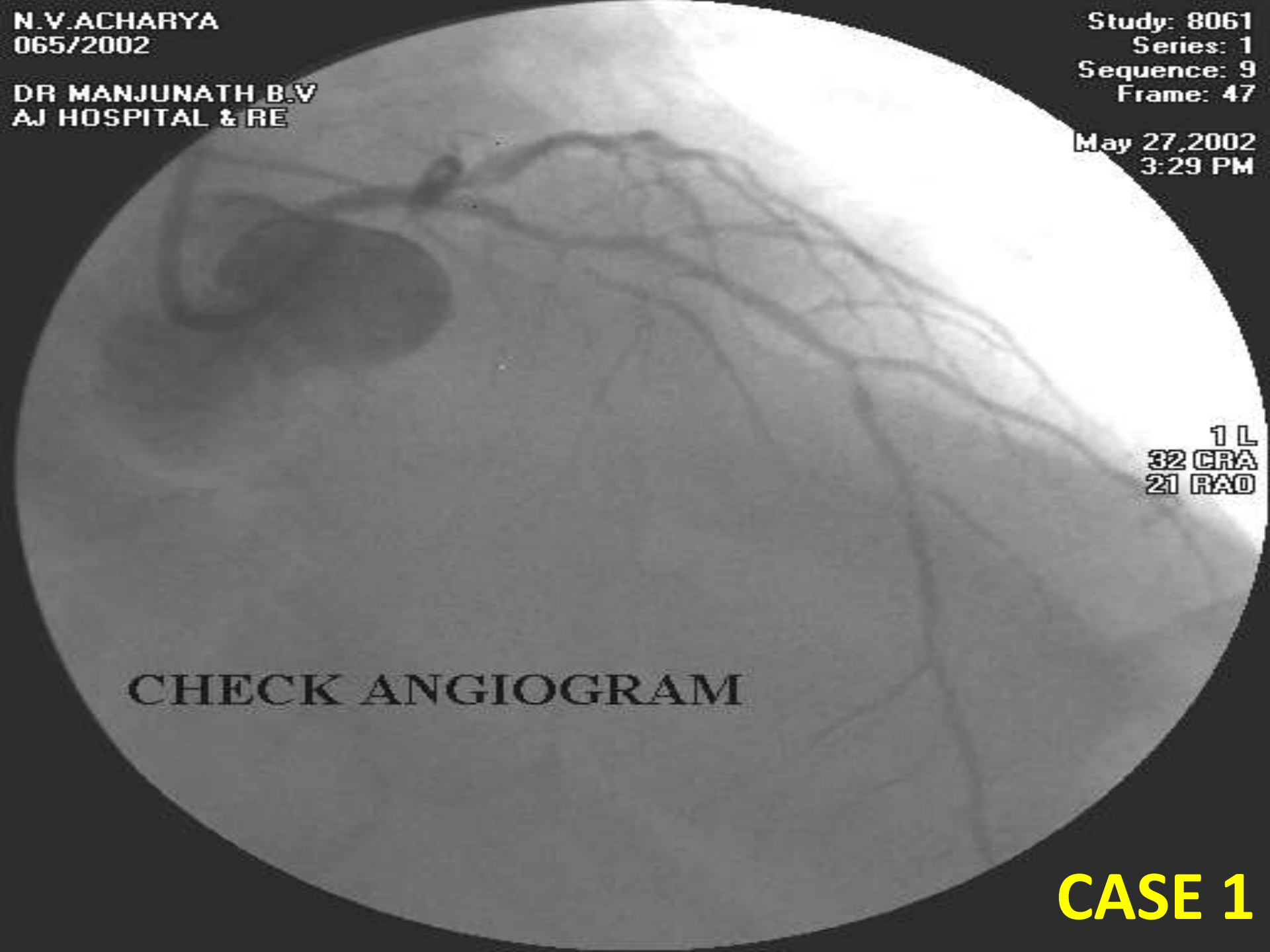
First Angioplasty done on

22nd February 2002

@ AJHRC

First Rescue Coronary Angioplasty

- Done on May 2002
- Patient in C. Shock -> VT/VF
- DC shocked multiple times
- Survived all these years
- Died last month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AJ HOSPITAL & RE
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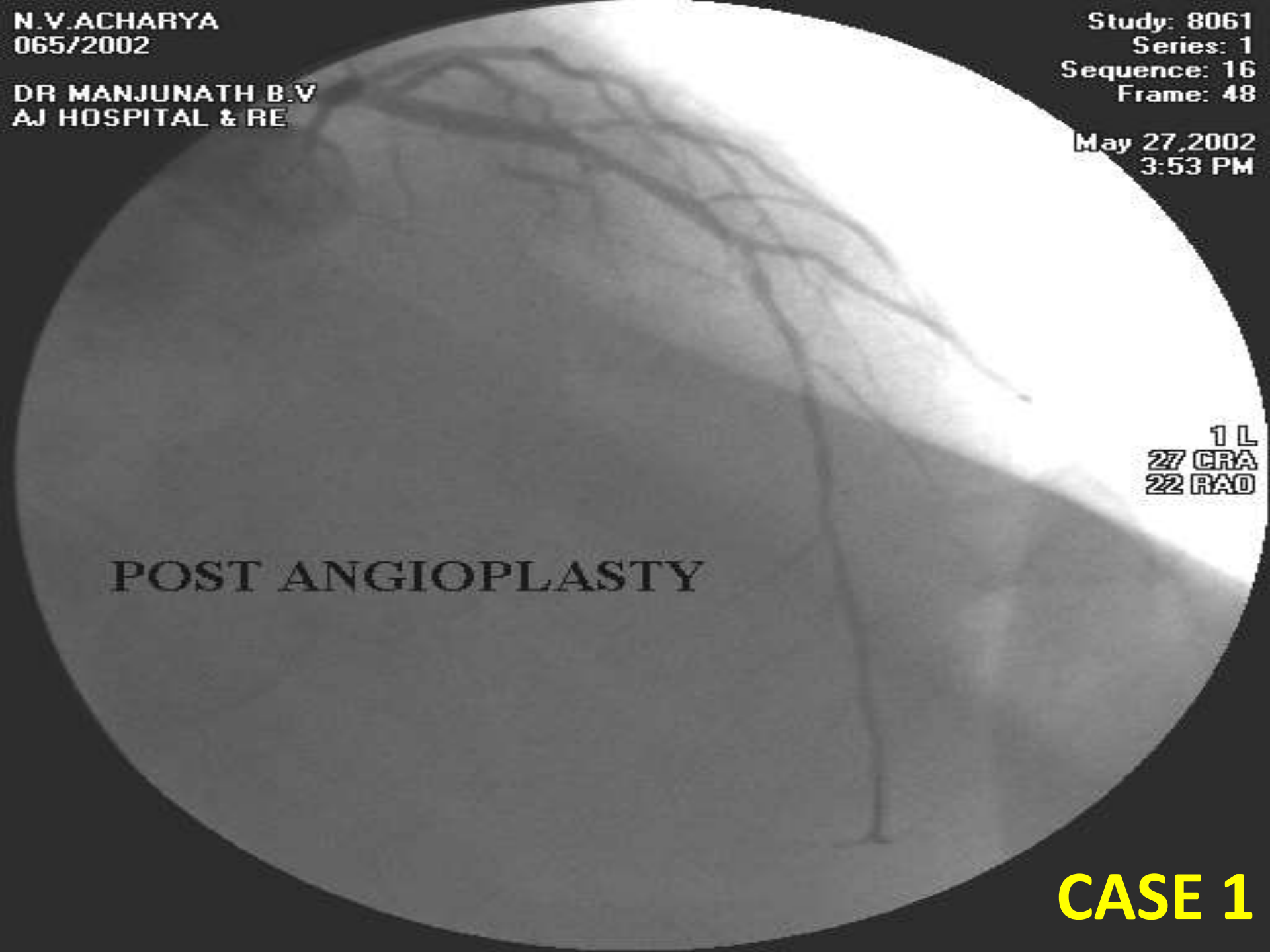
1 L
32 CRA
21 RAO
CHECK ANGIOGRAM
CASE 1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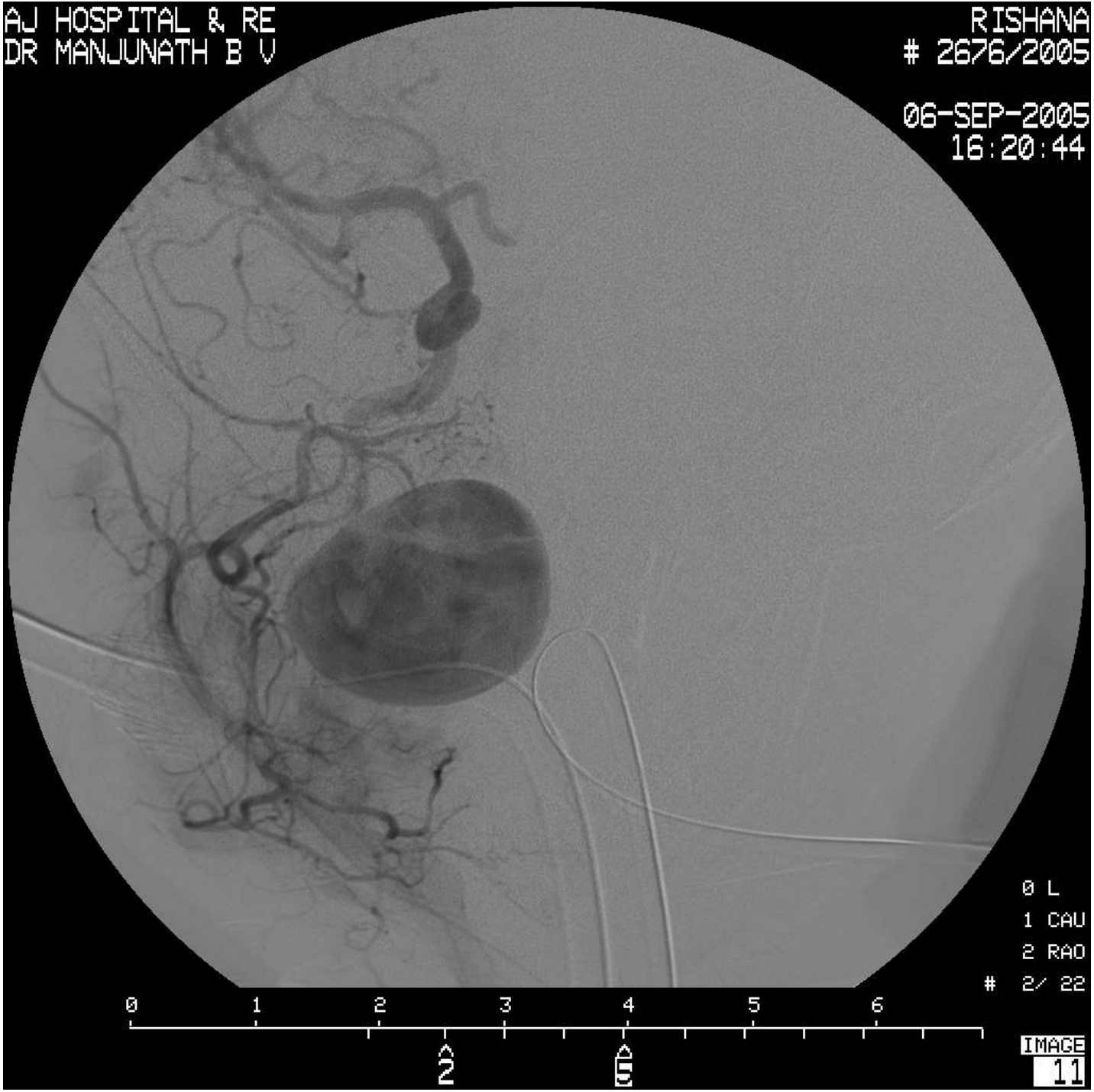
1 L
27 CRA
22 RAO
POST ANGIOPLASTY
CASE 1

YOUNGEST BABY IN *WORLD* TO Undergo CAROTID STENTING

- **BABY RESHANA 1 YEAR 3 MONTHS**
  - H/o fall 10 days prior to admission
  - Profuse bleeding from oropharynx and nose
  - Pulsatile swelling behind right ear
  - Hb: 5.0gm% SPO2 ↓↓
  - Hypotension
    - Many bottles of blood transfusions
      - → no use
  - Put on mechanical ventilation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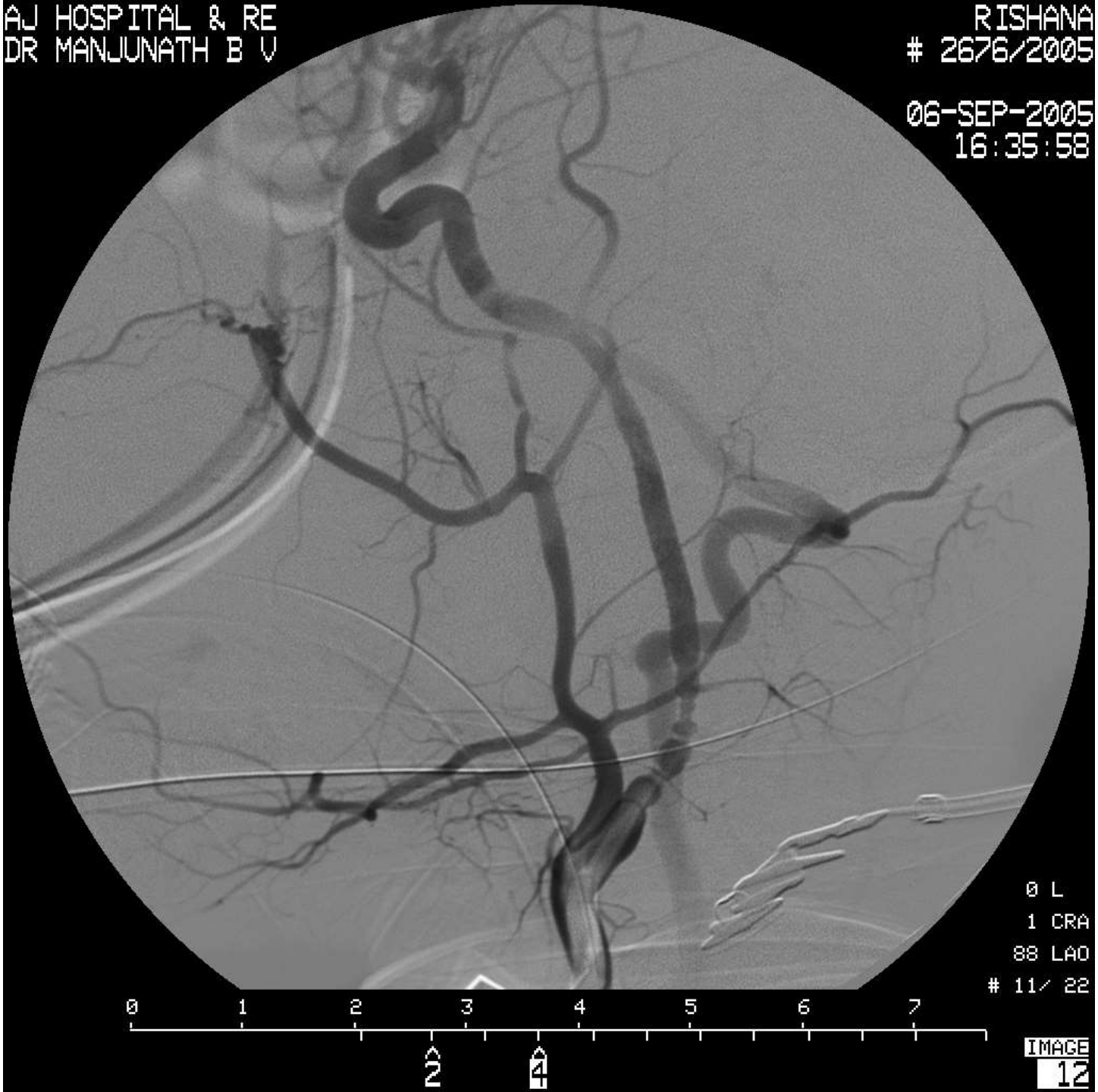
DR MANJUNATH B V
RISHANA
2676/2005
06-SEP-2005
16:20:44
0 L
1 CAU
2 RAO
2/ 22
0 1 2 3 4 5 6
IMAGE
11


AJ HOSPITAL & RE
DR MANJUNATH B V
RISHANA
2676/2005
06-SEP-2005
16:34:13
0 L
1 CRA
88 LAO
7/ 22
0 1 2 3 4 5 6 7 8
2
11
IMAGE
13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2676/2005
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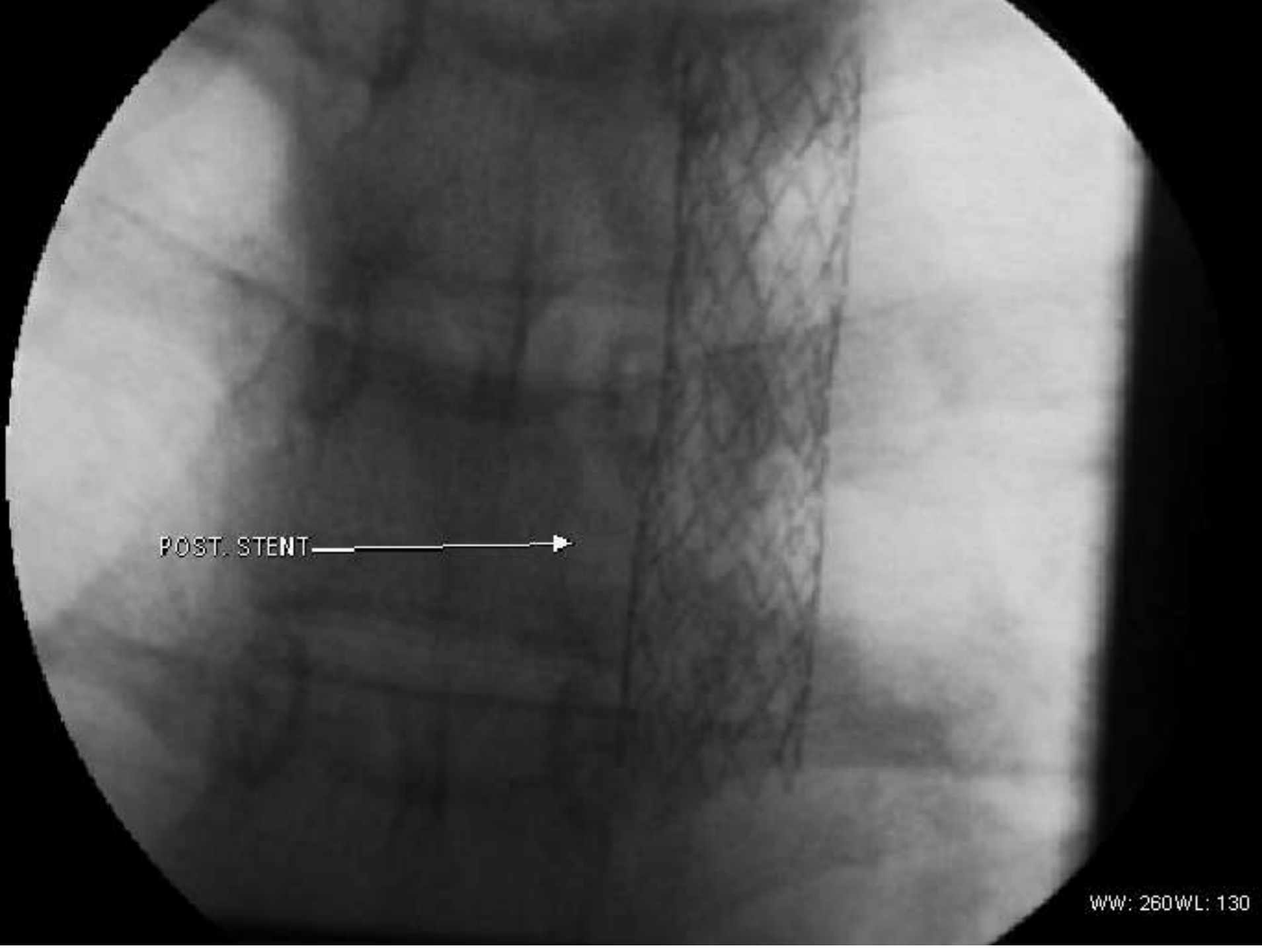
0 L
1 CRA
88 LAO
11/ 22
0 1 2 3 4 5 6 7
IMAGE
12

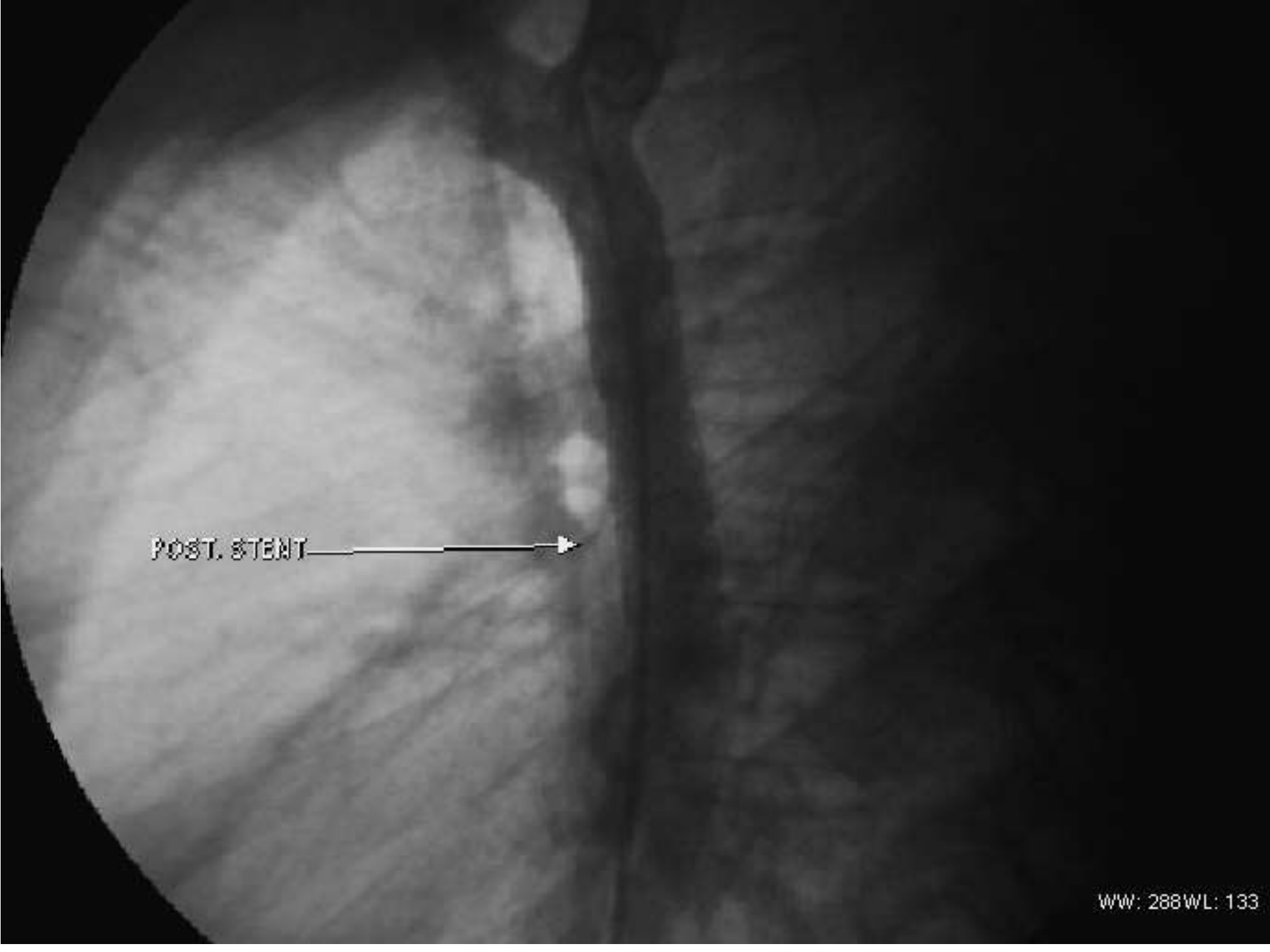

19 11:47

First *Coarctoplasty*

- 28 year old male
- Uncontrolled Hypertension
- Coarctoplasty with Stenting

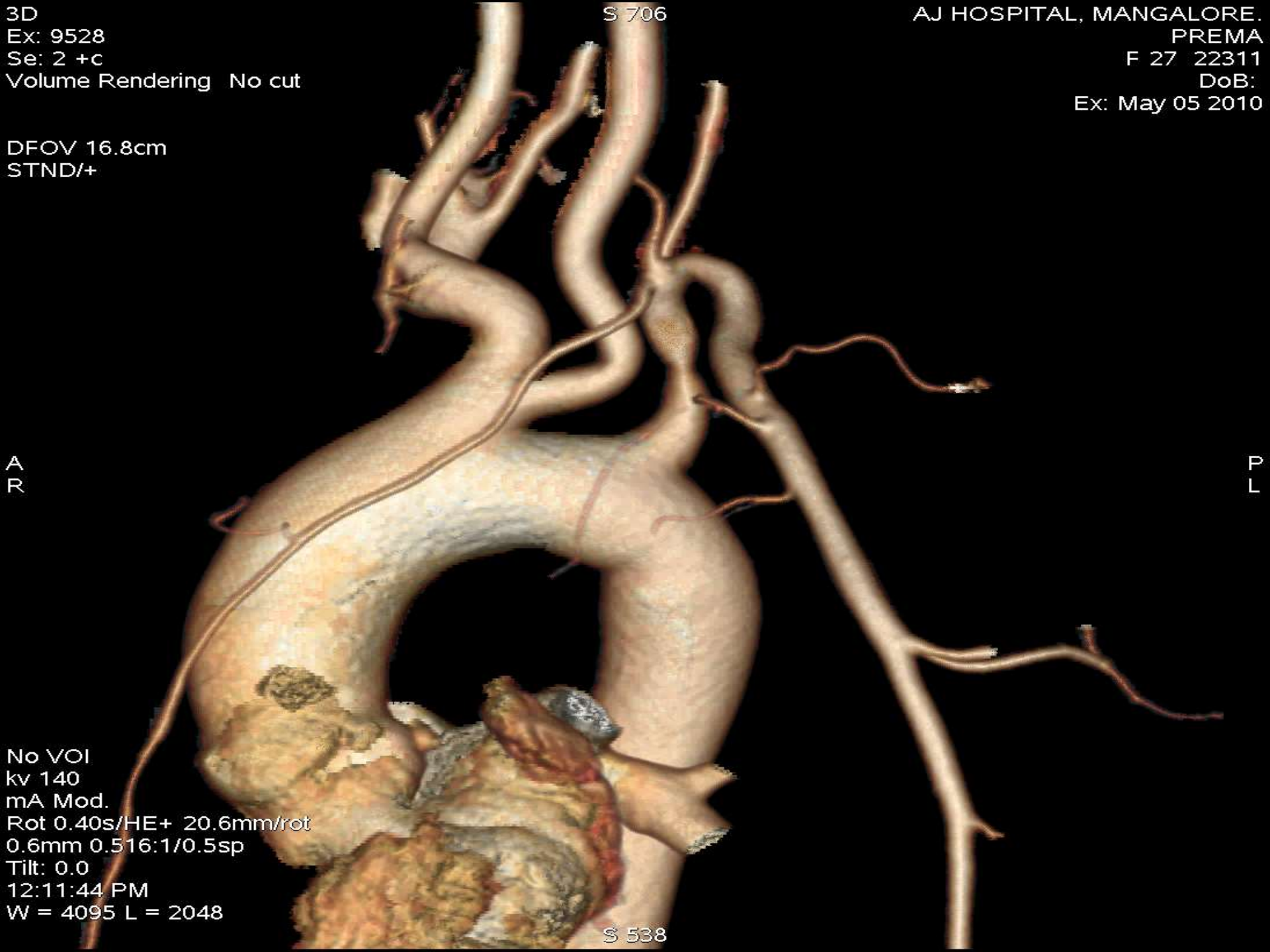

WW: 241 WL: 117


POST. STENT
WW: 260 WL: 130


POST. STENT
WW: 288 WL: 133

Left Subclavian Artery Angioplasty with Stenting

- 27year old female
- Left hand with pre gangrene changes in left middle and ring fingers
- CT Angio showed 90% thrombus occlusion of Left Subclavian Artery


3D
Ex: 9528
Se: 2 +c
Volume Rendering No cut
DFOV 16.8cm
STND/+
S 706
AJ HOSPITAL, MANGALORE.
PREMA
F 27 22311
DoB:
Ex: May 05 2010
A
R
P
L
No VOI
kv 140
mA Mod.
Rot 0.40s/HE+ 20.6mm/rot
0.6mm 0.516:1/0.5sp
Tilt: 0.0
12:11:44 PM
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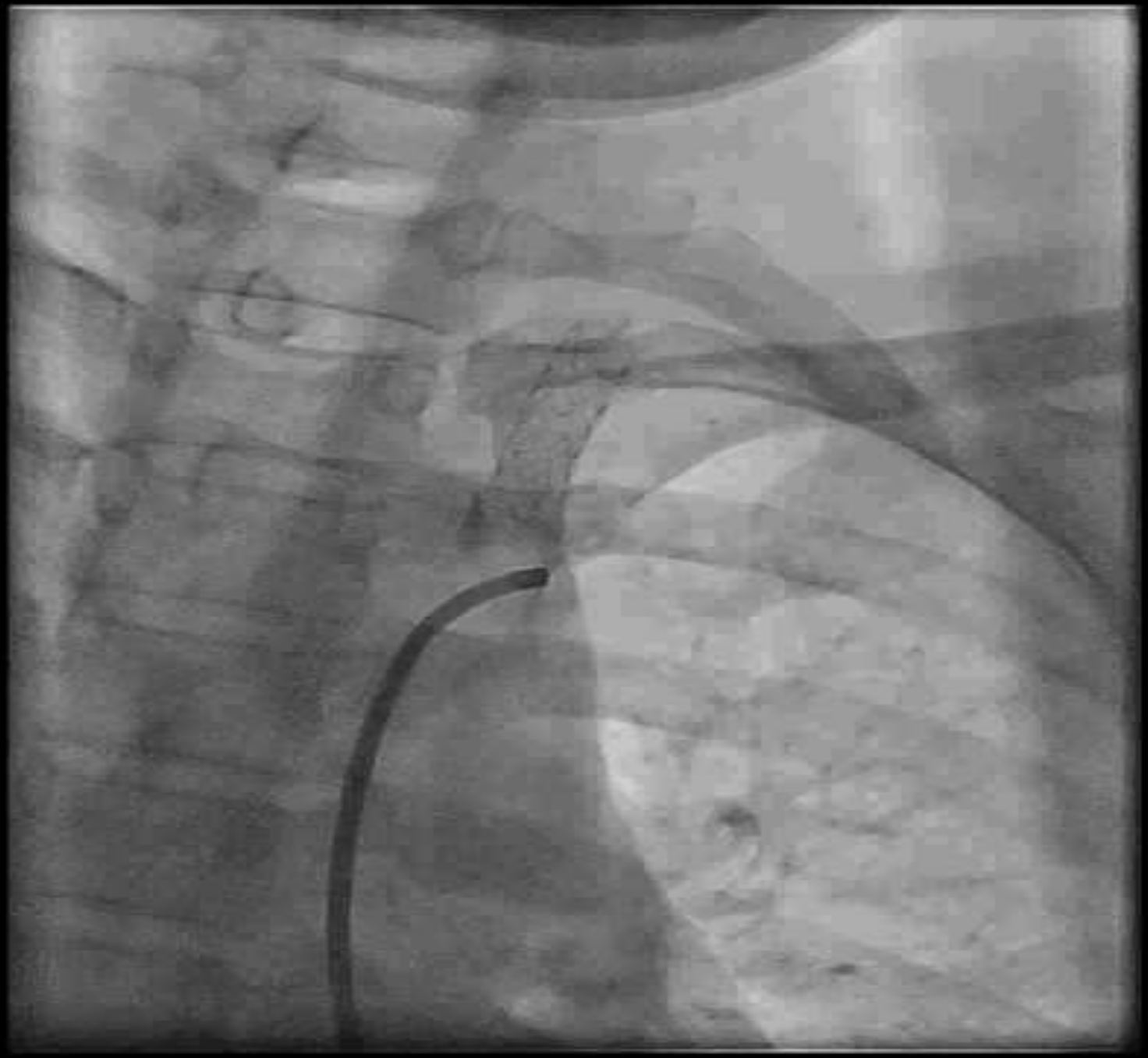
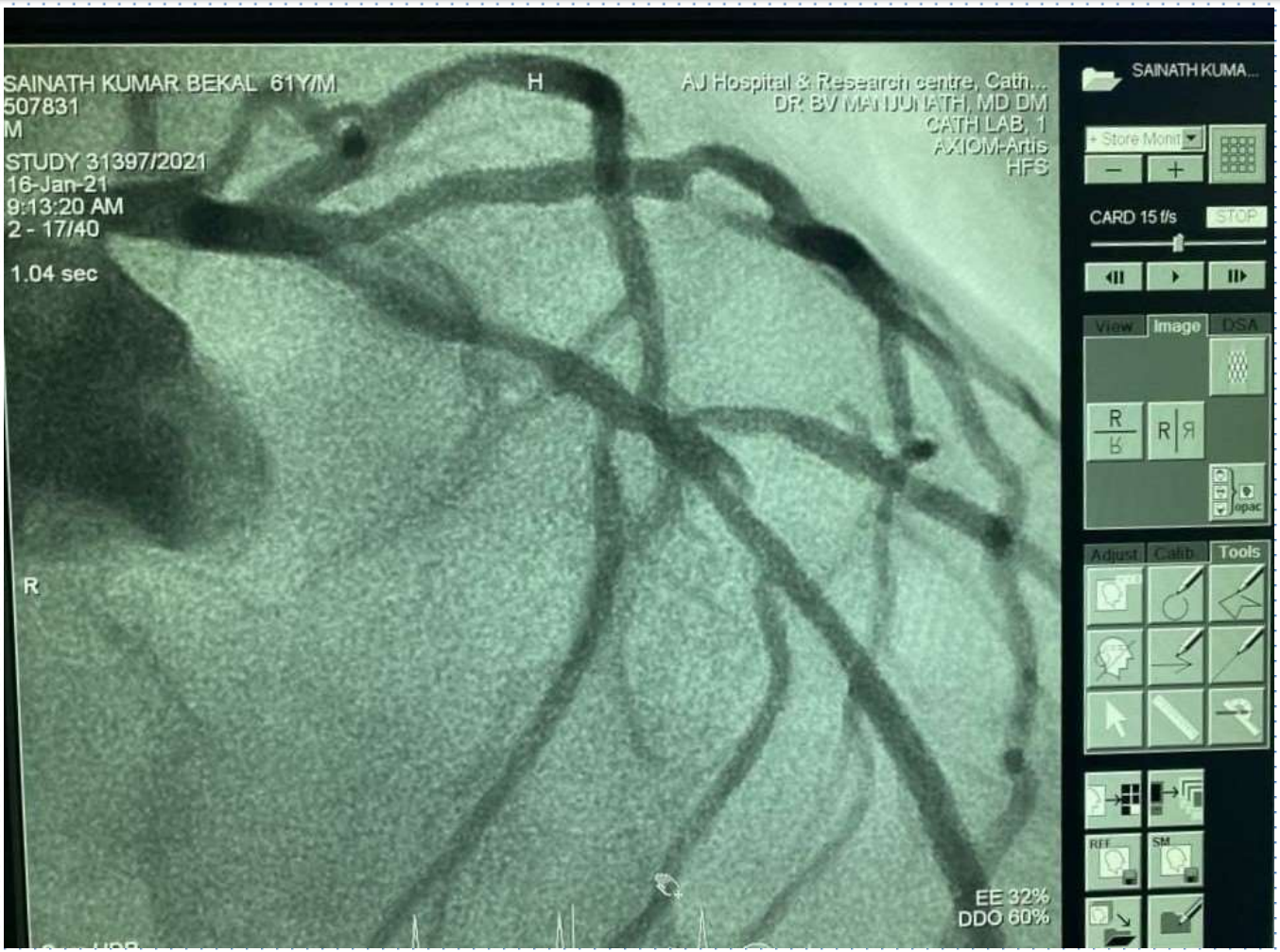
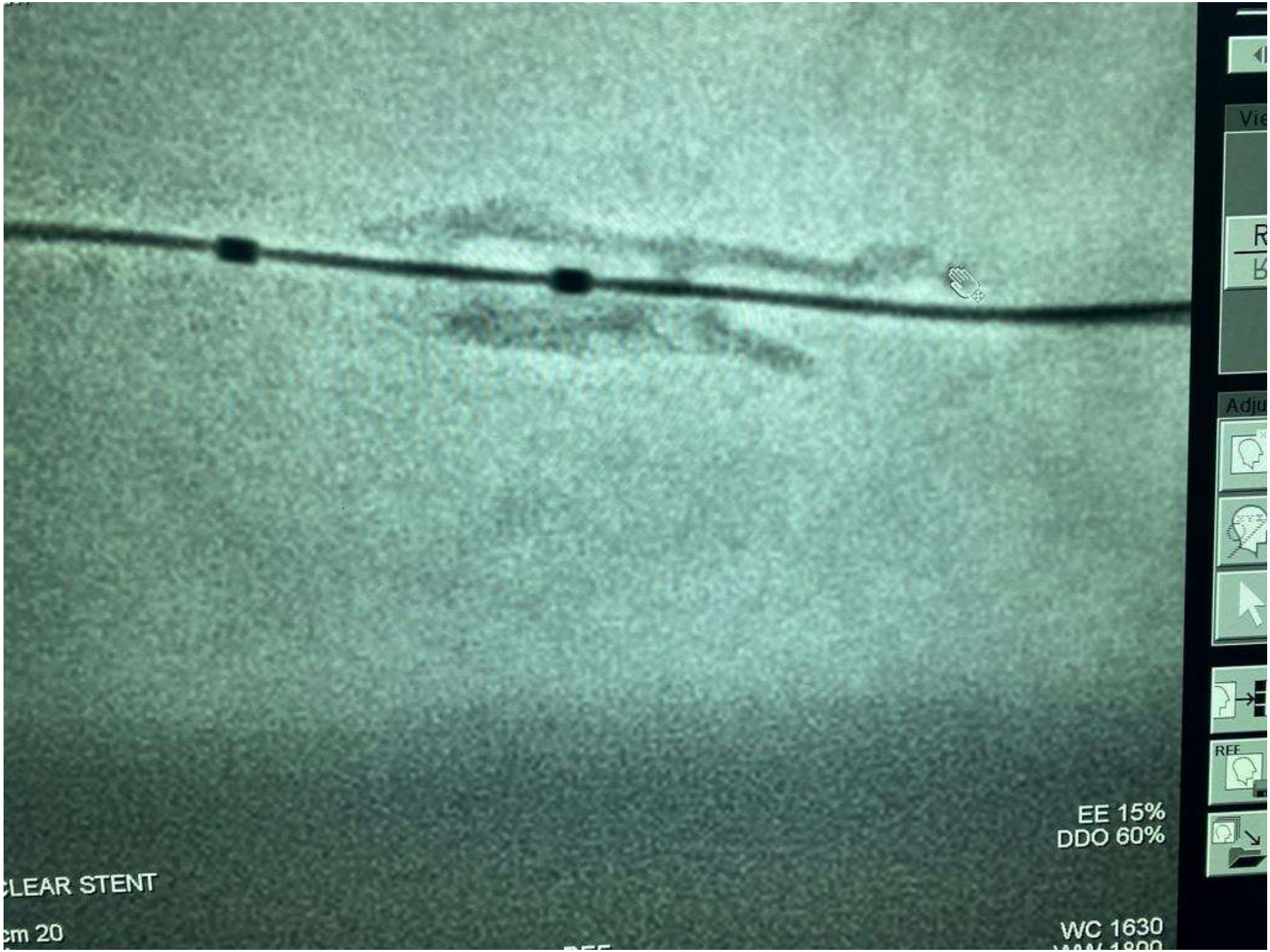
S 538

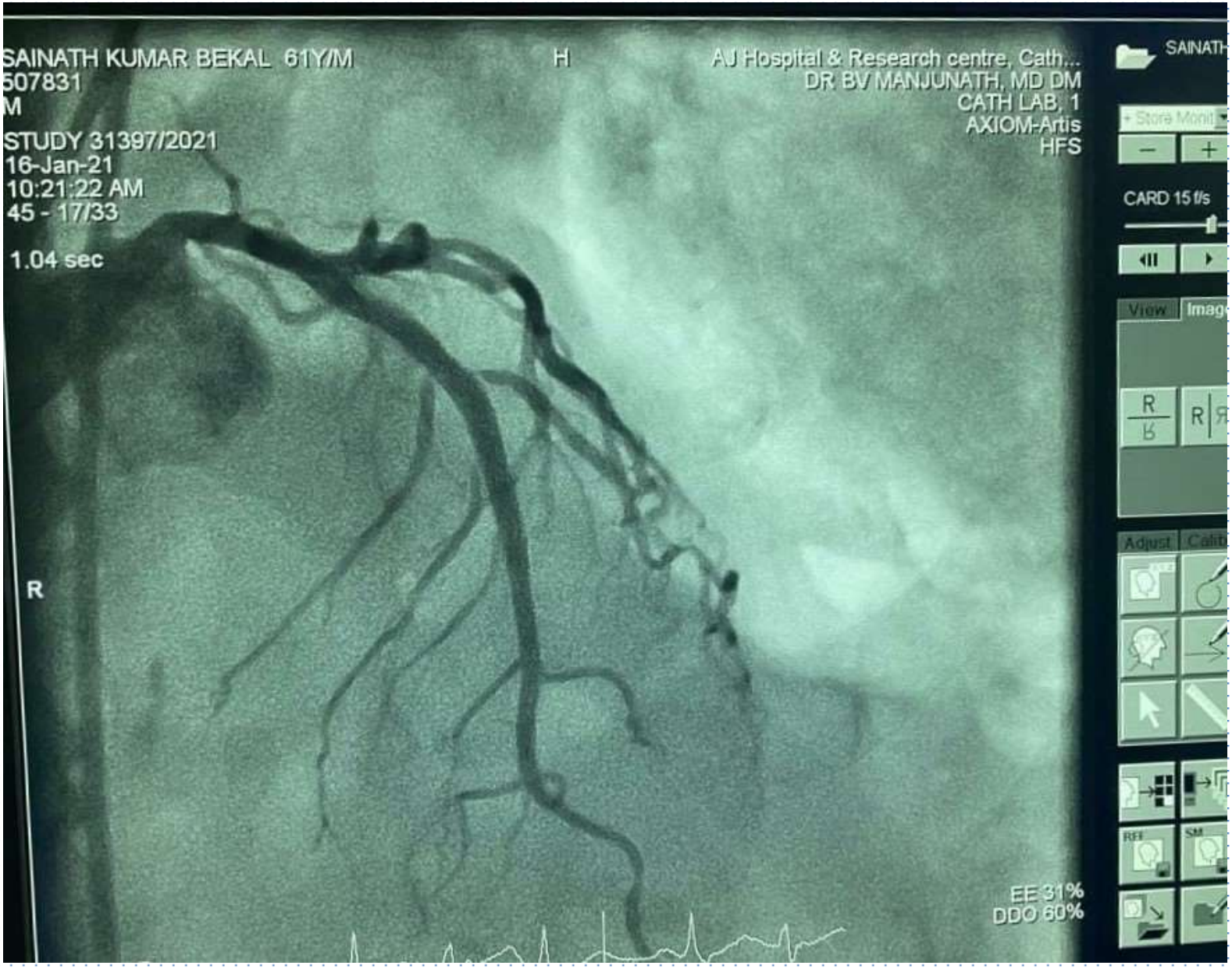


FIRST SHOCKWAVE IVL IN OUR STATE

FIRST Shockwave IVL IN OUR STATE




EE 15%
DDO 60%
CLEAR STENT
cm 20
WC 1630


SAINATH KUMAR BEKAL 61Y/M
H
AJ Hospital & Research centre, Cath...
507831
DR BV MANJUNATH, MD DM
M
CATH LAB, 1
AXIOM-Artis
STUDY 31397/2021
HFS
16-Jan-21
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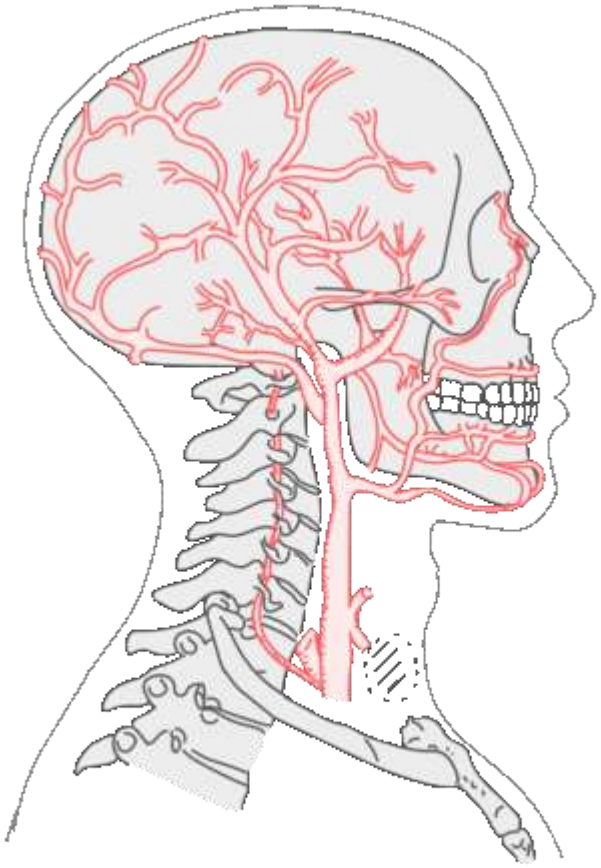
45 - 17/33
1.04 sec
R
CARD 15 f/s
EE 31%
DDO 60%


SHOCKWAVE
30



CAROTID ARTERY STENTING


3148/2006
PADMANABHA BHAT
M
01-Feb-2006
Acq: 13:39:02
Se: -
Im: 1/30 Fr: 1/34
RAO: -37°
CAUD: -3°
Zoom: 1.00x
W:256 L:128 (Auto)
DLX
AJ HOSPITAL & RE
DFOV: -


3148/2006
PADMANABHA BHAT
M
01-Feb-2006
Acq: 14:58:22
Se: -
Im: 26/30 Fr: 1/30
RAO: -34°
CAUD: -3°
Zoom: 1.00x
DLX
AJ HOSPITAL & RE
DFOV: -


3148/2006
PADMANABHA BHAT
M
01-Feb-2006
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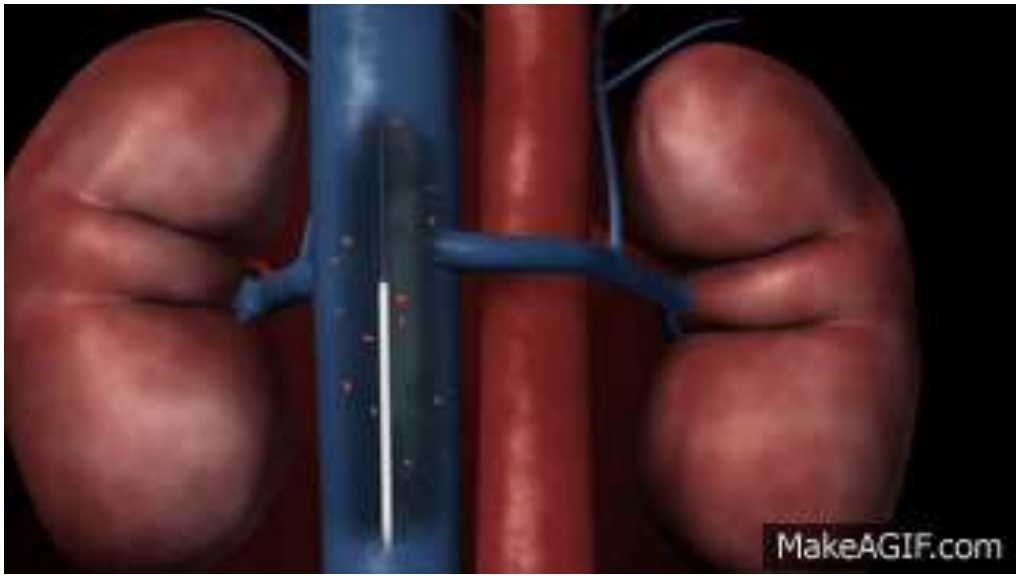
DLX
AJ HOSPITAL & RE
DFOV: -



IVC FILTER


045/2002
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F
20-Apr-2002
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Se: -
Im: 2/8 Fr: 22/130
DLX


045/2002
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20-Apr-2002
Acq: 22:52:04
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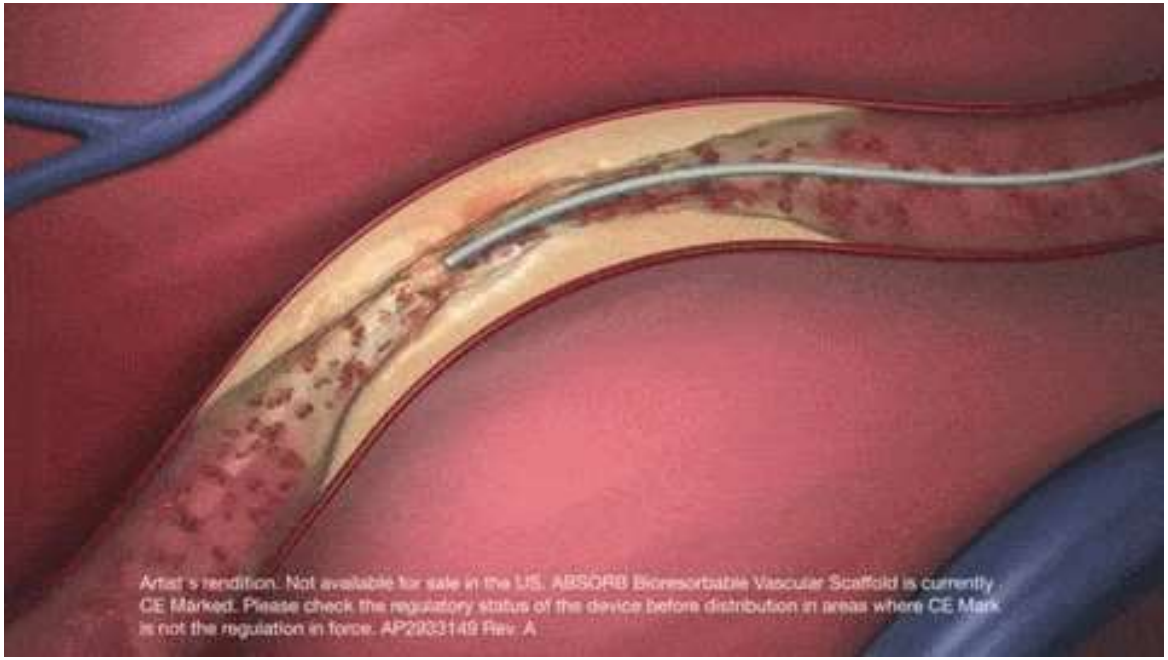
DLX



RENAL ARTERY STENTING

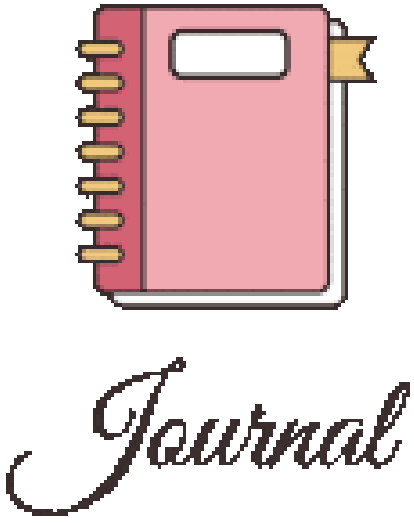

9/20/2011
ANJAN SHETTY 31/M
M
031Y
LAO: 1°
CAUD: 3°
Zoom: 1.00x
W:100 L:127 (Auto)
DFOV: 18.8 x 18.8 cm


9/20/2011
ANJAN SHETTY 31/M
M
031Y


9/20/2011
ANJAN SHETTY 31/M
M
031Y
Zoom: 1.00x
W:100 L:121 (Auto)
DFOV: 18.8 x 18.8 cm

PUBLICATIONS

- 50 *National* and 10 *International* Papers presented / published in indexed journals



Case Report

Rare Case of Large Saccular Pseudoaneurysm from Both Iliac Arteries and its Management by Endovascular Repair Using Kissing Balloon-Stent Technique

Manjunath Venkataramaiah Bagur

Department of Cardiology, A.J. Institute of Medical Sciences and Research Centre, Mangalore, Karnataka, India

Abstract

Isolated true and false iliac artery aneurysms are rare. Cases of iliac artery pseudoaneurysm are even less common and very rarely reported in the literature. Unless interventions are done immediately by either open surgical repair or endovascular repair, the mortality rate remains very high (>50%). We present a complicated case of large saccular pseudoaneurysm from both iliac arteries undergoing a unique procedure of "kissing balloon stent" technique.

Keywords: Endovascular repair, kissing balloon-stent technique, pseudoaneurysm

Introduction

Pseudoaneurysms of the iliac arteries are extremely rare. They are usually secondary to trauma, but may be iatrogenic following intravascular catheterization. They have also been reported as a rare complication of pelvic surgery. Over the last few decades there has been an increase in the incidence of pseudoaneurysms in general, due to an increase in interventional vascular access, Infections, connective tissue disorders, vasculitis. Erosion secondary to malignancy may also be implicated in the formation of pseudoaneurysms. The rupture of a pseudoaneurysm represents a life threatening event. We are presenting one such case who underwent early EVR by unique technique.

Case Report

A 71-year-old female patient was admitted to A.J. Hospital and Research Centre, Mangalore, with severe lower abdominal pain of 5 days duration in January 2017. She also gives a history of peripheral arterial disease, Type 2 diabetes mellitus, and systemic hypertension. She had a history of cerebrovascular accident, hypothyroidism, rheumatoid arthritis, chronic kidney disease, and coronary artery disease. She gives no history of any blunt or penetrating abdominal injury. Apart from a history of undergoing percutaneous transluminal coronary angioplasty in 2003, no other procedures were done through the femoral artery route. There was no history of connective tissue disorders or inflammatory diseases in the past which could attribute to the present condition.

Investigations

Clinical examination revealed tenderness over the right inner thigh area with bluish discoloration. The lower limb vessels were feeble to palpate. Other systemic examinations were not contributing to the present clinical finding. Electrocardiogram showed T inversions in anterior leads. Echocardiography showed normal systolic left ventricular function. Abdominal ultrasound revealed a large saccular pseudoaneurysm of the right iliac artery. computed tomography (CT) angiogram confirmed a large saccular aneurysm measuring 6.6 cm × 4.6 cm × 3.44 cm from proximal right common iliac artery with diffuse atherosclerotic changes

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DOI: 10.4103/ijves.ijves_74_21

will help to prevent distortion of the right iliac stent when left iliac stent inflated subsequently.

Then, the left iliac stent and right iliac post dilatation balloon which is placed in the already deployed stent were simultaneously expanded (kissing balloon-stent technique) so that both stents are optimally dilated and placed at the bifurcation which avoided stent deformation. This unique technique ensured 100% sealing of both iliac arteries as well as covering the aortic bifurcation (carina) as evidenced by a check angiogram. This also ensured the regression of pseudoaneurysm [Figure 5]. Post procedure, recovery was uneventful.

Repeat ultrasonography with Doppler study was done immediately after procedure which showed resolving pseudoaneurysm. The patient received antiplatelets and statins as lifelong therapy.

Follow-up

Follow-up Doppler study at the end of 1 month and 3 months showed complete resolution of the pseudoaneurysm. In view of existing chronic kidney disease, repeat CT angiography was not contemplated at the follow-up periods. The patient was followed up for 3 years (interquartile range-3 months). However, she succumbed in 2020 due to other existing comorbidities.

Discussion

Pseudoaneurysm is a contained rupture of an artery due to disruption of the wall continuity. It forms a sac in direct communication with the donor artery. Unlike a true aneurysm which has all three wall layers, pseudoaneurysm is surrounded by only a thin layer of media or adventitia. Many pseudoaneurysms are caused by blunt or penetrating trauma. Recently, the number of iatrogenic pseudoaneurysms due to surgical and interventional procedures has increased.[1] Infection can be the cause of both pseudo and true aneurysms; however, pseudoaneurysms are more frequent due to easy disruption of the arterial wall.[2]

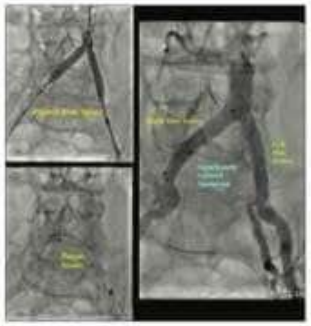

Figure 5: Deployed right iliac stent; postdilation balloon in existing right iliac stent; dilatation of both stents simultaneously and final result showing significantly reduced pseudoaneurysm

Connective tissue disorders, vasculitis, inflammation, and erosion secondary to malignancy are the other reported causes of pseudoaneurysms.[3] Atherosclerotic aneurysms are usually true in nature, but pseudoaneurysms originating from penetrating atherosclerotic ulcers have been reported.[4]

Patients can present with a variety of symptoms based on the location of the aneurysm. Rupture is associated with high mortality (>50%). Presentation with pressure effects on surrounding structures is also reported.[5]

Endovascular approaches to repair these aneurysms are increasingly popular with largely positive results over the past two decades.[6]

The evolution and development of the various endovascular grafts for iliac artery aneurysms have substituted the conventional open surgical repair (OSR).[7] EVR is associated with fewer complications and shorter hospital stay when compared to open surgery.

Balloon-expandable covered stents are preferred to self-expanding stents in iliac interventions[8] and in this case, there was an eccentric significant proximal lesion in the left iliac artery in addition. The operative mortality rate for OSR after aneurysm rupture is as high as 40%–50% but very low for EVR.[9,10]

In the present case, the arterial rupture was slow and gradually increased over 5 days which allowed us to investigate and intervene. A possible cause in the present case could be pseudoaneurysm secondary to penetrating atherosclerotic ulcerative lesions.

Conclusion

Leaking pseudoaneurysm is a life-threatening clinical entity. Diagnosis at the earliest and prompt interventions such as EVR with stent grafts is a life-saving procedure. Kissing balloon-stent technique for the treatment of complex iliac bifurcating diseases can be considered in patients with poor prognoses due to serious comorbidities and those with high risk for open surgeries.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given her consent for her images and other clinical information to be reported in the journal. The patient understands that name and initial will not be published and due efforts will be made to conceal identity, but anonymity cannot be guaranteed.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

References

1. Sueyoshi E, Sakamoto I, Nakashima K, Minami K, Hayashi K. Visceral

Original Article

Management of Densely Calcified Coronary Lesions using OPN–NC Balloon and Shockwave Intravascular Lithotripsy Procedure: A Single-Center Study

Manjunath Venkataramaiah Bagur

Department of Cardiology, A. J. Institute of Medical Sciences and Research Centre, Mangalore, Karnataka, India

Abstract

Calcified coronary lesions are challenging to the interventional cardiologists to manage. With newer technological innovations, moderate-to-severe calcifications can be managed with safe and effective percutaneous coronary interventions (PCIs). Shockwave intravascular lithotripsy (IVL) is one of the novel therapeutic procedures found to be very effective in PCI of calcified lesions. Thus, we present the clinical experience of shockwave IVL in cases with calcified lesions done between February and March 2020 and their clinical follow-up in our center.

Keywords: Coronary calcification, intravascular lithotripsy, stent boost

Introduction

Moderate-to-severe calcifications are found in approximately one-third of coronary lesions. Heavily calcified lesions are difficult to dilate. Unless lesions are well prepared before stenting, the complication rates are high in underdeployed stents, which leads to higher incidence of Major Advance Coronary Events (MACE) including higher rate of target lesion revascularization (TLR) and target vessel revascularization (TVR), increased incidence of stent thrombosis, restenosis, myocardial infarction, and death.[1]

Shockwave intravascular lithotripsy system is a novel catheter-based device which uses pulsatile mechanical energy to disrupt calcified lesions. Miniature emitters placed along the length of a semicompliant balloon convert electrical energy into transient acoustic circumferential pressure pulses that disrupt both superficial and deep calcium in vascular plaque.[2] Intravascular lithotripsy (IVL) modifies calcium both circumferentially and transmurally, and it has shown to have effect on deep calcium as compared to other ablation techniques and enables low-pressure balloon dilatation of calcified stenotic *de novo* coronary artery lesion before stenting. It is Food and Drug Administration (FDA)-approved therapy following the results of DISRUPT CADIII trail.[3]

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Quick Response Code:

Website: www.joicc.org

DOI: 10.4103/jicc.jicc_28_21

Materials and Methods

Study population

Four patients with densely calcified lesions as evidenced by coronary angiography underwent shockwave IVL at A. J. Institute of Medical Sciences and Research Centre, Mangalore, between February and March 2020. Informed consent was taken after explaining the risk of dye allergy and procedure.

The first case [Figure 1] is a 71-year-old male with the history of hypertension and Class II effort angina with positive tread mill test with good LV function. Coronary angiogram showed 90% proximal left anterior descending (LAD) lesion. Noncompliant (NC) balloon and OPN-NC balloon were used for predilatation, and a 3.5 mm × 12 mm IVL balloon catheter with 6 cycles of 10 s each (60 pulses) was delivered to all target lesions. Following which, drug-eluting stent implantation was done.

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E-mail: drmanjunathbv@gmail.com

How to cite this article: Bagur MV. Management of densely calcified coronary lesions using OPN–NC balloon and shockwave intravascular lithotripsy procedure: A single-center study. J Indian coll cardiol 2021;XX:XX-XX.

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The second case [Figure 2] is a 70-year-old male with the history of diabetes and hypertension and had recent unstable angina with mild LV systolic dysfunction. Coronary angiogram showed an 80% long calcified lesion in LAD from proximal to mid portion, NC balloon and OPN-NC balloon was used for predilatation, received all 80 pulses from mid to osteal portion of LAD using 3.0 mm × 12 mm IVL balloon catheter following which drug-eluting stent implantation was done with post dilatation.

The third case [Figure 3] is a 61-year-old male patient, hypertensive and diabetic with normal LV function with recent unstable angina, and had an 80%–90% long calcified lesion in proximal to mid LAD. Used NC Balloon and OPN-NC balloon for predilatation and proceeded with 3.0 mm × 12 mm IVL balloon catheter (6 cycles), following which drug-eluting stent implantation was done with post dilatation.

The fourth case [Figure 4] is a 70-year-old female patient, diabetic with non-ST elevation myocardial infarction showing single-vessel disease with proximal LAD 80% calcified lesion. She underwent predilatation with NC balloon and OPN-NC balloon and shockwave IVL balloon catheter of 3.0 mm × 12 mm with 8 cycles, Due to severe calcified lesion, IVL balloon ruptured at the end of the procedure but had no complications. Drug-eluting stent implantation was done with postdilatation.

All these patients had angiographic and stent boost-supported procedure to optimize the results. Postprocedure results were satisfactory and uneventful in all four cases.

All the patients are on periodic follow-up and are clinically asymptomatic and stable. Follow-up noninvasive tests including stress myocardial perfusion imaging were done to assess for inducible ischemia and was found to be negative in all patients.

Discussion

IVL balloon catheter system includes miniaturized and arrayed lithotripter that are integrated into semicompliant balloon filled with a mixture of contrast and saline which produces shockwave, providing an effective fluid–tissue interface which facilitates efficient coupling of shockwave energy and

Figure 1: ???

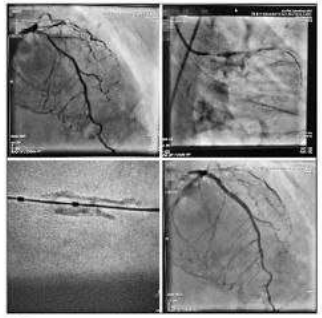


Figure 2: ???

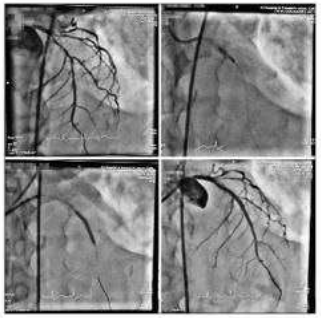


Figure 3: ???

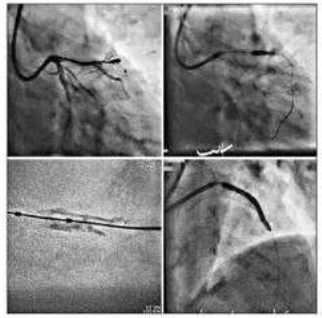


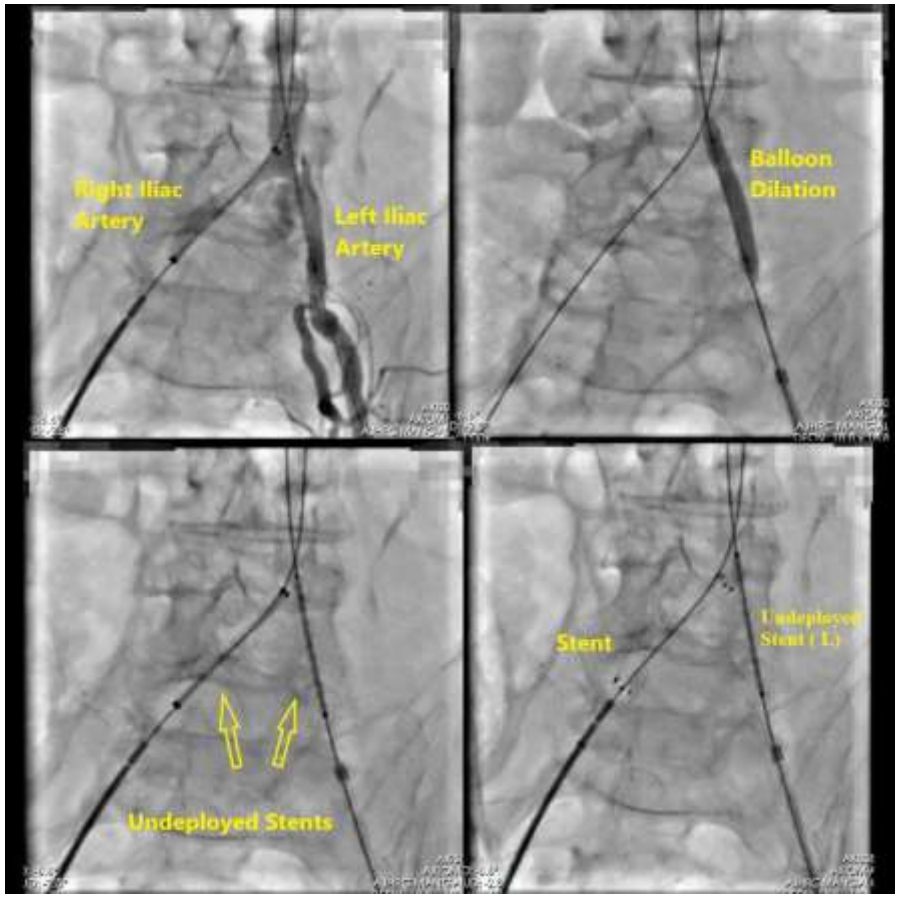
Figure 4: ???

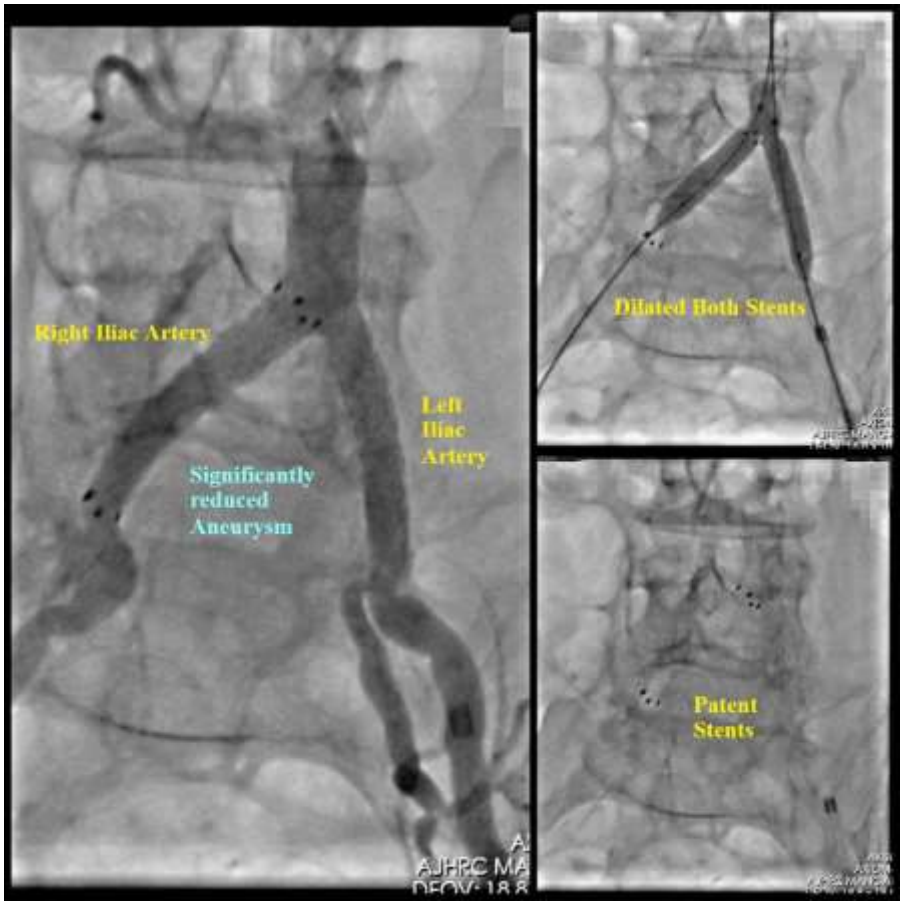
- Won prestigious **"Future Onco Cardio Award"** at 4 th International Onco- Cardio Conference, M.A. Anderson Centre, Houston, Texas, U.S.A.

  on 5th Nov, 2016 for ***Best Paper*** presented on

  "Atrial Fibrillation in Pancoast Tumor - Rare Presentation & Newer Hypothesis on CHA2DS VASc score".

Endovascular Conference @ Chicago 2017


Right Iliac Artery
Left Iliac Artery
Balloon Dilation
Undeployed Stents
Stent
Undeployed Stent (L)


Right Iliac Artery
Left Iliac Artery
Significantly reduced Aneurysm
Dilated Both Stents
Patent Stents

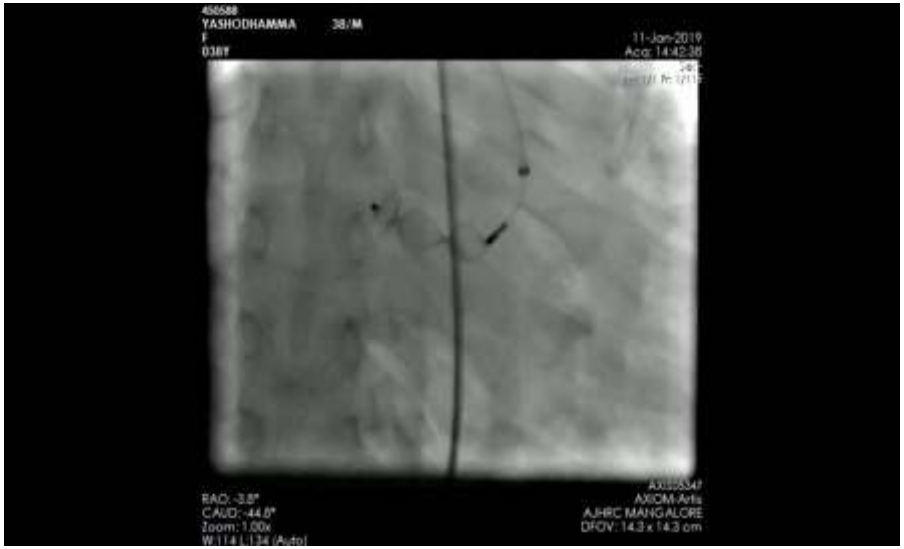
PAEDIATRIC CARDIOLOGY

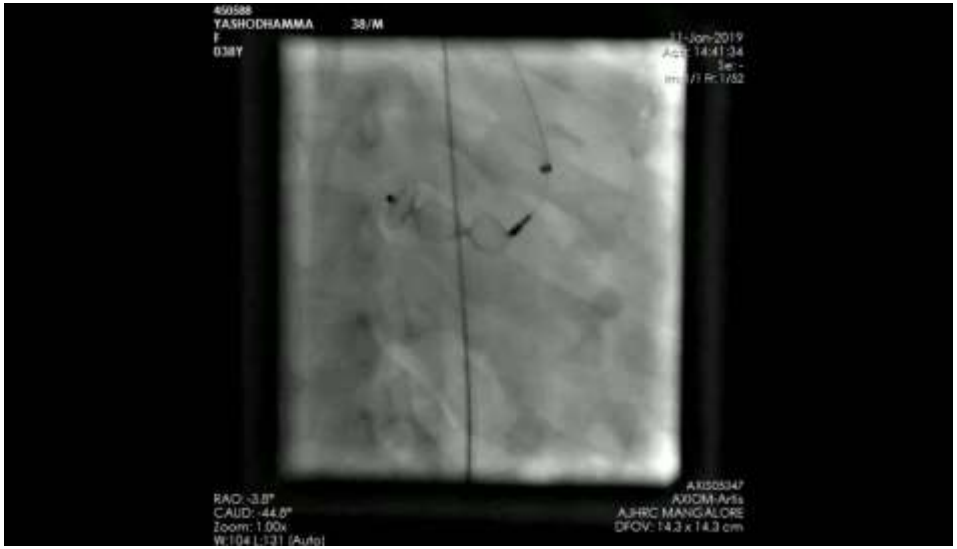
- 37 year female
- C/o Breathlessness on walking
- Diagnosed to have ASD elsewhere
- Our Diagnosis →
  Large Coronary Cameral Fistula to Right Atrium

- Rx : Device closure of fistula

1ST In MANGALORE


038Y
LAO:-4.8°
CAUD:-44.6°
Zoom: 1.00x
W:105 L:134 (Auto)


450588
YASHODHAMMA 38/M
F
038Y
11-Jan-2019
Acq: 14:42:38
RAO: -3.8°
CAUD: -44.6°
Zoom: 1.00x
W:114 L:134 (Auto)
AXIOM-Artis
AJHRC MANGALORE
DFOV: 14.3 x 14.3 cm

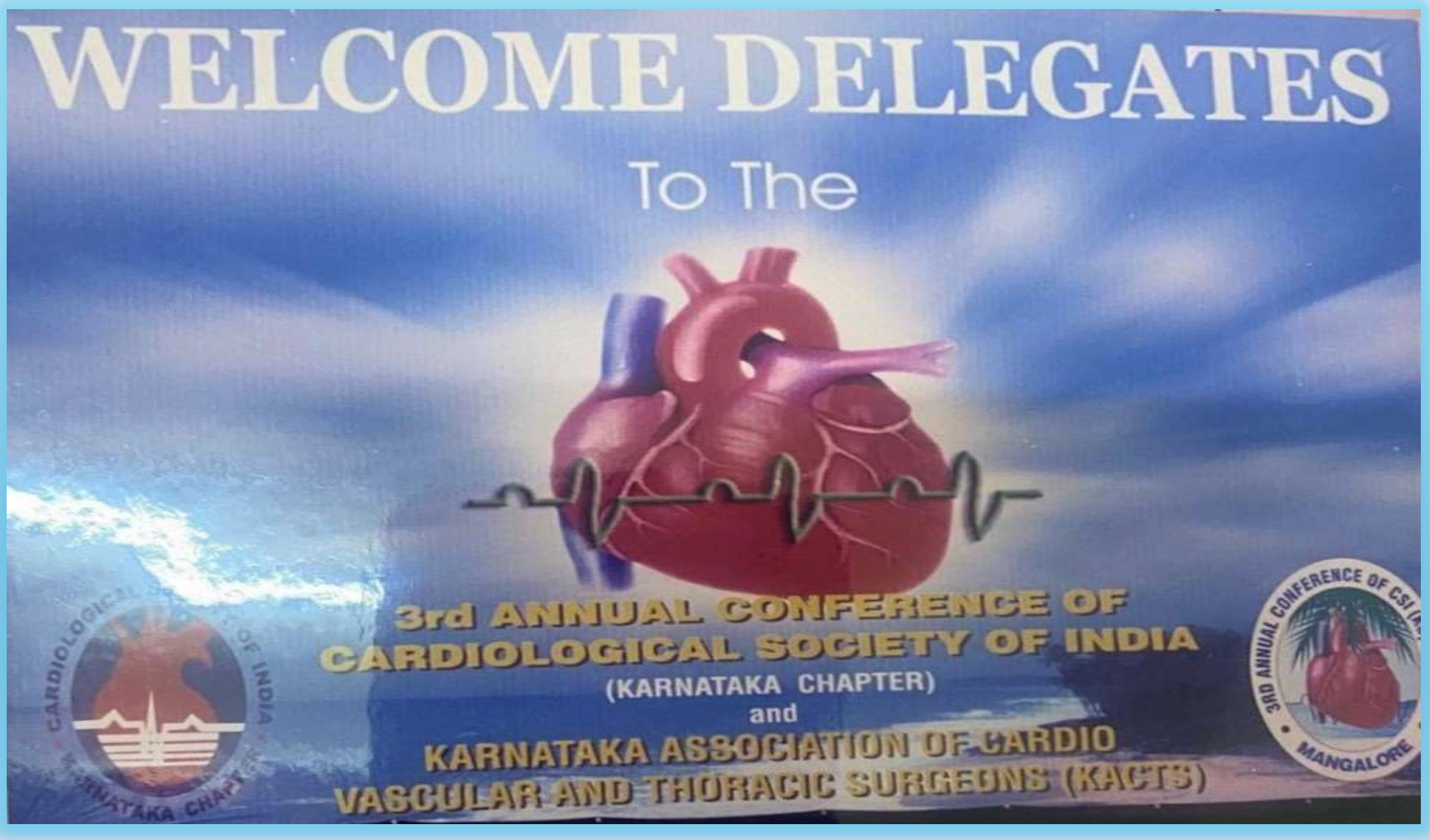

450588
YASHODHAMMA 38/M
F
038Y
11-Jan-2019
Acq: 14:41:34
RAO: -3.8°
CAUD: -44.6°
Zoom: 1.00x
W:104 L:131 (Auto)
AXIOM-Artis
AJHRC MANGALORE
DFOV: 14.3 x 14.3 cm

Cardiology Camps

- **Arogyabhagya Camps** : 2003 / 2004 / 2005

- **Paediatric Cardiac Camps**

- **Conducted 3rd Annual Conference of CSI- Karnataka Chapter @ Dr TMA Pai international Center. M'lore (2005)**




3rd ANNUAL CONFERENCE OF
CARDIOLOGICAL SOCIETY OF INDIA


3rd ANNUAL CONFERENCE OF
CARDIOLOGICAL SOCIETY OF INDIA

e-SPECTRUM - 2022

(SymPosium on Cardiovascular Therapies and Research Update - Mangaluru)

SPECTRUM

SPECTRUM 2012 -2022

Commemorating the success of

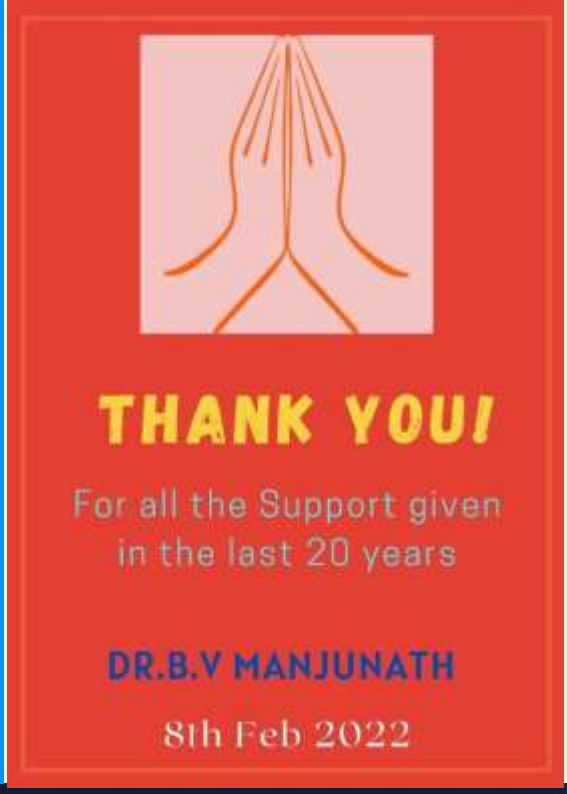
10,000 coronary angioplasties

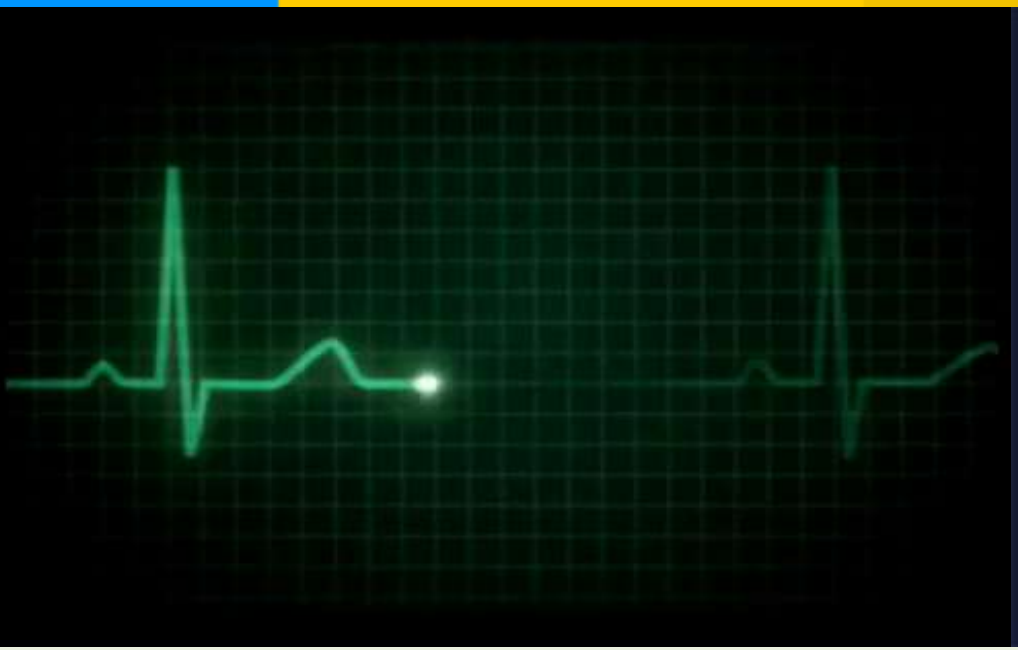
&

35000 coronary angiograms

The Department of Cardiology at A.J. Hospital & Research Centre


20


THANK YOU!
For all the Support given
in the last 20 years
DR.B.V MANJUNATH
8th Feb 2022




Thankyou