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ROYAL CARE HOSPITALS

making life better

Editor & Publisher

Dr. K. Madeswaran

Chairman - Consultant Neuro & Spine Surgeon

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CHAIRMAN'S COLUMN

Dear friends,

India's healthcare sector stands at a defining moment. With rapid advancements in medical technology, expanding access to care, and a growing emphasis on preventive health, our nation is steadily moving toward a more resilient and inclusive healthcare ecosystem. Hospitals today are not merely centers for treatment; they are pillars of trust, innovation, and social responsibility.

As a healthcare institution, we believe our role extends beyond curing disease. We are equally committed to safeguarding life through awareness, education, and prevention. One of the most pressing public health challenges India faces today is road traffic injuries—particularly head injuries, which account for a significant proportion of preventable deaths and long-term disabilities. Every helmet worn, every seatbelt fastened, and every responsible decision on the road has the power to save a life.

Head injuries often strike without warning, altering not just individual lives but entire families. Through timely trauma care, advanced neuroimaging, and multidisciplinary medical expertise, outcomes can be improved—but prevention remains the most powerful intervention. Road safety is not only a legal obligation; it is a moral and social responsibility we all share.

As we move forward, our hospital remains dedicated to delivering compassionate, ethical, and world-class healthcare while actively participating in community outreach and road safety awareness initiatives. Together—healthcare professionals, policymakers, and citizens—we can build a safer, healthier India where progress is measured not just by innovation, but by lives protected and futures preserved.

Let us commit ourselves to healing, prevention, and responsibility—on our roads and beyond.

With warm regards

Dr. K. Madeswaran
Founder Chairman

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From The EDITOR'S DESK

> "Nothing will come of nothing.
> Dare mighty things..."
>
> -William Shakespeare

We are nearing the completion of the 1100-bed expansion at a tremendous pace and hope to inaugurate midway through this year and occupy the new and improved facility, which shall house more modern operating theatres, ICU, burns ICU, ultra-modern birthing suites and labour operation theater, Neonatal ICU, poison center with very luxurious rooms, and also economical rooms.

Top-notch technology for our people has been the motto of our chairman, and we are bringing integrated HIMS and paperless functioning throughout the hospital this year, and many more modern equipment to aid in the diagnosis and treatment of various illnesses.

The 9th Annual Day functions – Royal Fest 2025 was conducted by the hospital, and it was a great evening to remember,r with the chairman and many directors attending the function as part of the royal care family. The Chairman commemorated the evening with our achievements and the future plans for the hospital, and how it shall benefit the employees in the future.

As always, we are committed to the dissemination of knowledge, and there were many CME programs conducted by the team, and our doctors delivered medical lectures for the benefit of general practitioners and specialists. The developmental pediatrics state conference workshop was conducted in our hospital, and the IMA AMS TNSB critical care workshop was also conducted very successfully by our intensivists.

The hospital conducted a cancer survivor's meet-up where nearly 700 people participated with enthusiasm and shared their success stories of beating cancer with the help of Royal Care Institute of Oncology. We have articles on cardiac MRI, endogynecology, aortic root surgery, hepatectomy, and emergency bronchial repair in this edition.

We congratulate Dr.M.N.Sivakumar for receiving the presidential citation award at the national conference in Kochi. We welcome the new team of consultants who have joined the ever-growingRoyal care Hospital medical fraternity and wish them success in their endeavors.

ROYAL CARE INSTITUTE OF ONCOLOGY HONOURS CANCER SURVIVORS AT SURVIVORS MEETUP 2026

Dr.K.Madeswaran, Chairman & Managing Director of Royal Care Hospital, and others participated in the meetup for cancer survivors

The Royal Care Institute of Oncology conducted Survivors Meetup -2026, themed "Celebrating the Journey of Our Warriors-From Struggles to Smiles", on 7th February 2026 at Royal Care Super Speciality Hospital, Neelambur, Coimbatore. The event was a heartfelt tribute to cancer survivors who have overcome immense challenges and emerged stronger, symbolising hope, resilience, and triumph.

The celebration was organised to honour individuals whose lives reflect extraordinary courage and determination in the face of cancer. Survivors from diverse backgrounds came together, sharing their personal journeys of struggle, recovery, and renewed strength. The gathering served as a reminder that cancer is not just a medical battle, but a deeply human experience shaped by emotional endurance, support, and compassionate care.

The Survivors Meetup was a powerful celebration of courage, resilience, and hope. It brought together survivors, caregivers, clinicians, and healthcare professionals under one roof, fostering a sense of unity and solidarity. The atmosphere was filled with inspiring stories, heartfelt smiles, and moments of reflection, reinforcing the importance of emotional well-being alongside clinical excellence in cancer care.

The event also featured inspiring addresses by motivational speaker Erode Mahesh and Pattimandram Fame Pulavar Ramalingam, whose thought-provoking speeches deeply resonated with the audience and added great value to the occasion.

The event was graced by the presence of Dr.K.Madeswaran, Chairman & Managing Director, Royal Care Hospital, who lauded the strength of the survivors and reaffirmed the institution's unwavering commitment to patient-centric and personalised oncology care. Addressing the

gathering, he highlighted Royal Care's vision of delivering advanced medical care with empathy, dignity, and trust.

Adding clinical insight to the occasion, Dr.N.Sudhakar, Consultant Medical Oncologist, spoke about the evolving landscape of cancer treatment and the significance of early diagnosis, precise staging, and tailored therapies. He emphasised that advances in oncology, combined with timely intervention and holistic care, have significantly improved survival outcomes and quality of life for patients.

Over the past decade, Royal Care Institute of Oncology has established itself as a centre of excellence in personalised cancer care, achieving significant milestones: 10,000+ cancer cases treated. 30,000+ lives touched, 25,000+ safe Chemotherapy, Targeted Therapy, and Immunotherapy infusions. 3,000+ Radical Cancer surgeries, 3,000+ Precision Radiotherapy Treatments, 40,000+ accurate PET-CT scans for cancer staging. These milestones reflect Royal Care's commitment to delivering comprehensive, technology-driven, and patient-focused oncology services.

Cancer care begins with awareness, early screening, and timely treatment. Recognising this, Royal Care Hospitals continues to focus on preventive oncology, early detection programmes, and integrated treatment pathways that address both medical and emotional needs of patients. Marking World Cancer Day, Royal Care Hospitals reaffirmed its mission to provide comprehensive cancer care centred on prevention, early diagnosis, and compassionate treatment. United by a unique vision and driven by clinical excellence, Royal Care remains dedicated to standing alongside patients and survivors at every step of their journey, turning struggles into smiles and challenges into stories of hope.

CRITICIMA 2025

IMA AMS TNSB CRITICALCARE WORKSHOP

A Certificate Course in Basics of Critical Care Medicine

We are pleased to announce that Royal Care Institute of Critical Care Medicine, in association with the Academy of Medical Specialities (AMS) wing of the Indian Medical Association (IMA), is conducting a workshop on the Basics of Critical Care for General Practitioners. It is the second edition of this structured programme, conceived and planned on the basics of managing the critically ill.

The first edition of this CRITICIMA programme was conducted in 2023, with five sessions on the last Sundays of every month. The course was attended by senior medical practitioners from various specialities across Tamil Nadu and was well-received, with overwhelming feedback. Due to increased demand from their members, IMA – AMS Tamilnadu state branch requested that we organise another edition of this course.

This edition is also planned for 5 months (5 sessions on the last Sundays of each month) starting in August, 2025. We limited the total number of participants to 25 to facilitate individual attention and one-to-one interaction in workshops.

The programme is coordinated by Dr. M. N. Sivakumar, Head of the department, and Dr.S.Lakshmikanth charan - Consultant Intensivist, Institute of Critical Care Medicine, Royal Care Superspeciality Hospital with the guidance of Dr.V.Rajeshbabu - IMA AMS Chairman and Dr.S.Jayaraman - IMA AMS Secretary.

Each session is planned as a whole-day programme at Royalcare Superspeciality hospitals, which includes Lectures in the morning and hands-on workstations on the same topics in the afternoon. The course was framed in a way to help Clinicians in their day-to-day patient management. Participants included General physicians, Emergency physicians, Anesthetists, Surgeons, obstetricians, Nursinghomeowners, Postgraduates from different specialities, and post-MBBS doctors.

The first session was inaugurated on 31.08.2025, in the presence of Dr.Paranthaman Sethupathi - Medical Director of Royalcare Super Speciality Hospitals, Dr.K.T. Manisenthilkumar - Chief Operating Officer of Royalcare Super Speciality Hospitals, and Dr.Rajeshbabu - IMA AMS Chairman. It covered the basics of critical care, including recognition, assessment, and optimization of critically ill patients, as well as Basic Life Support and Advanced Cardiac Life Support.

The second session was held on 28.09.2025 and covered critical care aspects of trauma, including primary and secondary surveys, basics of fluid resuscitation, and transport of the critically ill, with a hands-on workshop on ICD placement, needle thoracocentesis, cervical collar handling, and log roll.

The third session was conducted on 26.10.2025, which dealt with various aspects of toxicology and airway management. A hands-on workshop on securing and maintaining the airway, including

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oxygen therapy, intubation, approach to difficult airway, and surgical cricothyroidotomy was done.

The fourth session is planned on 30.11.2025, which will cover areas like Management of Sepsis, Infection control, and Mechanical ventilation. Hands-on workshops on non-invasive and invasive ventilation will be done.

Fifth session is planned on 25.01.2026, which will cover management of acute ill scenarios like burns, acute coronary syndrome, diabetic ketoacidosis, GI bleed and detailed lectures / workshop on nutrition practices in critically ill.

All five sessions are taught by the Consultants of the Institute of Critical Care Medicine, Royalcare. A lecture on ECMO basics was dealt by Dr.S.Kirubanand, consultant cardiac anaesthetist, and for the last session on acute scenarios, we have Dr.R.Chandramohan - Consultant Cardiologist, Dr.P.Velayutham - Consultant Endocrinologist, and Dr.P.Karthikeyan - Consultant Medical Gastroenterologist dealing with their speciality topics.

All the sessions were well attended by the delegates from all over Tamilnadu and the sessions were much appreciated. TNM Credit points were given after each session, and the course completion certificate will be provided during the last session to all the delegates. We are planning to conduct frequent courses like this in the future with a goal to homogenise the delivery of quality critical care at the primary care level in our region and improve patient outcomes.

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Case Series : Laparoscopic and Open Hepatectomies for Diverse Hepatic Pathologies

Dr. S. Soundappan
MBBS(MMC), MS(KEM, Mum), MRCS(UK), DNB - Surg Gastro (AIG, Hyd), FALS-Robotic, Fellowship-Hepatobiliary Surgery(AIG,Hyd), Fellowship-Liver transplant(CLBS,Delhi).,
Consultant - Gastro, Minimally invasive, and Liver transplantation surgery

Dr. A. Sandip Chandrasekar
MS, M.Ch (SGE), DNB (GI.Surgery), FALS (Bariatric).,
Consultant Surgical Gastro, Advanced Laparoscopic, HPB,GI Oncology and Bariatric Surgeon

Dr. Ilango Sethu
MS, MCh (GI and HPB Surgery), ASTS Multiorgan Transplant Fellowship (USA), Pediatric Liver Transplant Fellowship (Japan), FACS
Consultant - HPB and Abdominal Multi-Organ Transplant Surgeon

Abstract

We present a series of seven complex hepatic cases managed surgically at our center. These included malignant, benign, and metastatic conditions requiring both open and laparoscopic hepatectomies. The spectrum ranged from colorectal liver metastasis, cholangiocarcinoma, and hepatocellular carcinoma to hemangiomas and cystadenoma. The series emphasizes individualized decision-making, multidisciplinary care, and favourable postoperative outcomes.

Introduction

Hepatic resection remains the cornerstone of curative management for primary and secondary liver tumors, as well as for selected benign but symptomatic lesions. Despite advances in perioperative care, these procedures demand meticulous planning, precise execution, and multidisciplinary support. We present seven cases reflecting the spectrum of hepatic pathologies encountered over a two-month period.

Case	Age/Sex	Presentation / Diagnosis	Surgery Performed	Histopathology	Post-op Outcome / Adjuvant
1	65/M	Solitary metachronous colorectal liver metastasis (11 × 9 × 7 cm, S6–7), 5 yrs after ultralow LAR	Open right posterior sectionectomy	Metastatic adenocarcinoma, moderately differentiated	Uneventful; discharged POD 6
2	62/F	Ruptured liver tumor (10 × 8 × 7 cm), initially suspected HCC	Emergency TAE → elective Laparoscopic right hepatectomy	Hepatic adenoma	Uneventful; no adjuvant
3	75/M	HCC (12 × 11 × 10 cm) with diaphragmatic infiltration, CAD, DM, post-CABG	Staging lap → open right hepatectomy + diaphragmatic resection	Mixed HCC–cholangiocarcinoma with sarcomatoid & neuroendocrine features, Ki-67 45%, p16+	POD1 extubation; on Carboplatin + Etoposide + Lenvatinib

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Case	Age/Sex	Presentation / Diagnosis	Surgery Performed	Histopathology	Post-op Outcome / Adjuvant
4	71/M	Incidentally detected hilar cholangiocarcinoma (left duct origin)	Left hepatectomy + caudate resection + Roux-en-Y HJ	T1N0M0, PN1	Transient LFT rise; discharged POD 7; adjuvant Capecitabine
5	54/F	Giant right lobe hemangioma (24 × 17 × 12 cm), pain & satiety	Open right hepatectomy	Hemangioma	Smooth recovery; discharged POD 4
6	52/F	Exophytic hemangioma (11 cm, S5–6), post trivial trauma, persistent pain	Laparoscopic non-anatomical hepatectomy	Hemangioma	Smooth recovery; discharged POD 3
7	67/M	RCC recurrence (right kidney) + enlarging biliary cystadenoma (11 cm, left lobe)	Right radical nephrectomy + left hepatectomy + lymphadenectomy	Biliary cystadenoma + RCC recurrence	Uneventful recovery

Discussion

This series highlights the heterogeneity of hepatic pathologies requiring surgical intervention.

- **Oncological principles:** Solitary colorectal liver metastasis (Case 1) and hilar cholangio carcinoma (Case 4) benefited from anatomical resections with adequate lymph node clearance, negative margins, and adjuvant therapy.
- **Laparoscopic key hole surgery:** Case 2 & 6 - pushing beyond conventional indications for better & faster recovery
- **Emergency to elective conversion:** Case 2 emphasizes the importance of staged management where embolization ensured stability before curative resection.
- **Extended resections:** Case 3 demonstrates that complex resections, including diaphragmatic excision, can be safely performed in selected elderly patients.
- **Benign lesions:** Giant or symptomatic hemangiomas (Cases 5 and 6) and cystadenomas (Case 7) require surgery when symptomatic, large, fear of rupture or potentially malignant.
- **Multidisciplinary approach:** All cases underscore the importance of collaboration across surgical, medical oncology, hepatology, radiology, and critical care teams.

Case 2:
Key hole / Laparoscopy surgery – Specimen extraction via Pfannenstiel incision

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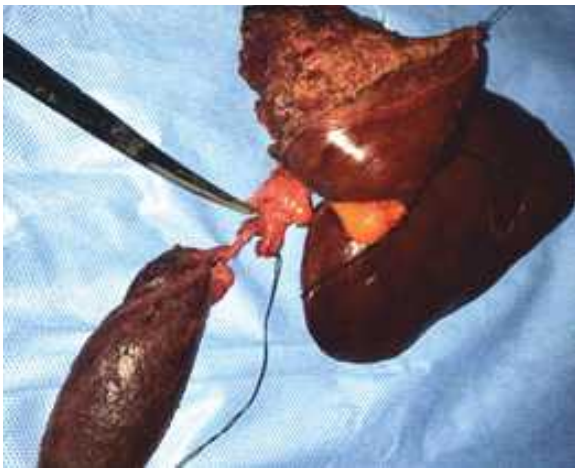
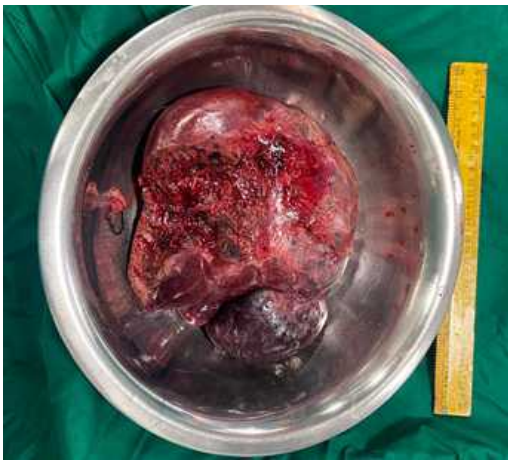


Case 4 : Left hepatectomy + caudate resection + Hepaticojejunostomy



Case 5: Giant hemangioma size – 27 cm

Case 6 : Laparoscopic hepatectomy beyond conventional indications (11cm hemangioma)

Conclusion

Hepatic resections continue to play a central role in the management of both malignant and selected benign lesions. This series demonstrates the diverse challenges and favourable outcomes achievable with multidisciplinary planning, timely intervention, and meticulous perioperative care. Key hole surgery when feasible adds to the overall recovery significantly.

welcome

Dr. Sanath Aithal MD (DVL), DNB (DV).,

Consultant Dermatologist

We warmly welcome Dr. Sanath Aithal to our medical team.

Dr. Sanath Aithal completed his MBBS in 1989 from the University of Mysore, followed by MD (Dermatology, Venereology & Leprosy) from Mysore University and DNB (Dermatology & Venereology) from the National Board of Examinations, New Delhi, in 1994.

With over 30 years of extensive experience in Dermatology, Venereology & Leprosy (Skin/STD/Leprosy), he brings vast expertise in both outpatient and inpatient care. He has served for 18 years as a Consultant Dermatologist in corporate hospitals and has also contributed to academics as a Professor in various medical colleges.

GLIMPSE

Dr. K. Madeswaran was honoured for his outstanding contributions to healthcare and environmental sustainability at Shri Nehru Maha Vidyalaya College of Arts and Science. (26.07.2025)

CME Program conducted at Dharmapuri on 10th August 2025

Kangayam Marathon held on 10.08.2025.

Developmental Workshop held at Royal Care on 14.08.2025

Independence Day Celebration at Royal Care 15.08.2025

Special Medical Health Camp Valedictory Function held at RCH in association with the Indian Officers' Association on 16.08.2025

National Nutrition Week 2025 Celebration at Royal Care on 07 September 2025

NALAM Health Expo at CODISSIA 13.09.2025

Screening & Consultation Camp at Good Shepherd International School Ooty on 14.09.2025

Yatra Diwas Campaign for the Hon'ble Prime Minister's Birthday – Screening and Consultation Camp at CJB Airport on 17.09.2025

A Giant Leiomyoma Mimicking an Aggressive Neoplasm

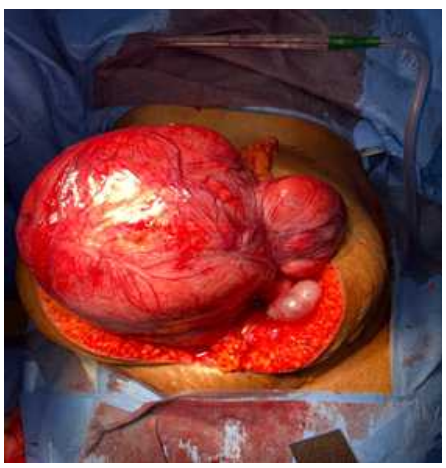
Dr. Manikandan Ramalingam
MBBS, MS(General Surgery),
MCh(Surgical Oncology),
Consultant Surgical Oncologist

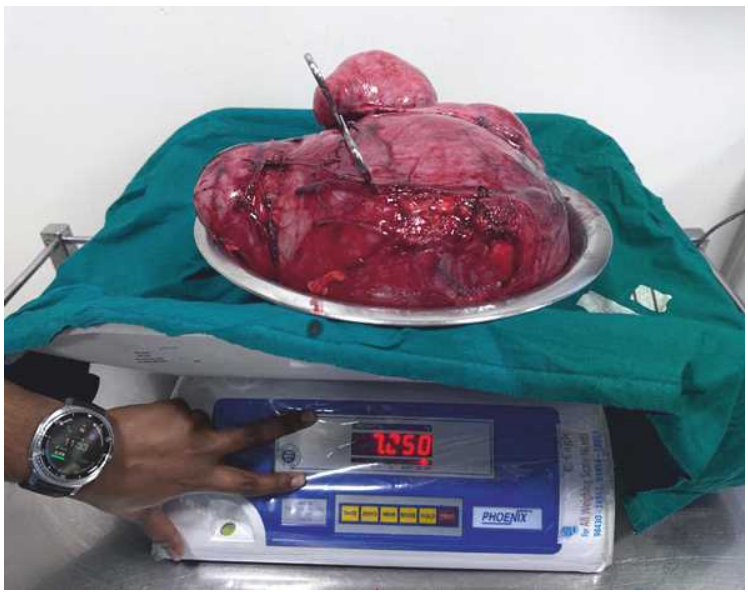
Dr. Vinodha Arunachalam
MBBS, M.S(OG)., MRCOG(UK), FMAS.,
Consultant Obstetrician and
Gynaecologist, Laparoscopic Surgeon

Case Article

A 33-year-old, multiparous woman presented to Royal Care Super Speciality Hospital, Coimbatore, with complaints of pain in the abdomen for the past 6 months, with an associated abdominal mass for the past 3 months, with no menstrual complaints. On examination, she had an abdominal mass of 32 weeks' size, hard in consistency, with a smooth surface. She was investigated further. Contrast-enhanced CT abdomen and pelvis showed a large well-defined lobulated 26x27x24 cms mass arising from the pelvis, extending to the abdomen till the level of the hypogastric region. Her screening MRI revealed a well-defined mass arising from the pelvis, pushing the uterus to the left with intense vascularity and heterogeneous enhancement. Posteriorly, the lesion is seen causing compression of the IVC and retroperitoneal structures.

The patient was taken for an exploratory laparotomy. Intraoperatively, a large mass of 35 cm × 35 cm × 16 cm was seen arising from the anterior surface of the uterus. Soft to hard in consistency, fixed, and impacted with many large dilated vessels on the surface of the fibroid. There were dense adhesions present between the mass and the bowel and bladder. The bladder was separated with the use of cautery carefully. Bowel separated with blunt and sharp dissection without any damage to them. Both-sided ureters were identified, and the course was traced. Mass was highly vascular. The frozen section report revealed a benign fibroid, followed by which a Total abdominal hysterectomy with right-sided salpingo-oophorectomy and left salpingectomy was done. The external surface of the mass was nodular, and the fibroid weighed 7.25 Kg. Postoperatively, the patient was stable. Her histopathology report revealed a leiomyoma with chronic cervicitis and with right hemorrhagic ovarian cyst.





Conclusion

Surgical Expertise is required to avoid injuries to structures, and as this tumor was highly vascular on Doppler and extensively large in size, the possibility of sarcoma was kept in mind while operating. Hence, such tumors are extremely rare, and good clinical hand and use of Doppler and MRI will help in planning surgical management. At the end, we conclude that extreme surgical expertise is required for a successful outcome, which in this case is achieved. Our case also highlights the need to keep in mind the various differential diagnoses while dealing with such a large pelvic mass, the diagnostic challenges faced, and the surgical approach required to reduce injuries.

9th Annual Day Celebration

Royal Fest 2025

was held at Brindhavan Auditorium, Coimbatore, on 20th December 2025.

Aortic Root Surgery:

Dr. G. Praveen Prabu
MBBS, DNB (Gen Surgery), M.Ch, CVTS.,
Consultant Cardiovascular and Thoracic Surgeon
Minimally Invasive Cardiac Surgeon

Introduction

The Bentall procedure is a complex yet life-saving cardiac surgery performed for patients with combined pathologies of the aortic root, aortic valve, and ascending aorta. In India, this procedure has gained traction due to rising incidence of congenital and acquired aortic diseases. It significantly reduces the risk of heart failure, stroke, and aortic rupture

Indications for Bentall Procedure

- Aortic Regurgitation: Incompetence of the aortic valve leading to blood leaking back into the left ventricle.
- Aortic Aneurysm: Abnormal dilatation of the ascending aorta, increasing the risk of rupture.
- Aortic Dissection: Life-threatening tear in the aortic wall.
- Marfan Syndrome: Connective tissue disorder often associated with aortic root dilatation.
- Congenital anomalies: Such as bicuspid aortic valve.

Types of Bentall Procedures

1. Classic Bentall Procedure: Composite graft replacement of the aortic valve, root, and ascending aorta with direct coronary reimplantation.
2. Modified Bentall (Button Technique): Reimplantation of the coronary arteries as "buttons" to reduce anastomotic complications.
3. Biological Composite Graft: Used in patients where anticoagulation is contraindicated.

Preoperative Evaluation

Comprehensive evaluation includes:

- Echocardiography
- CT Angiography / MRI
- Coronary angiography
- Pulmonary function tests
- Neurological and Infectious disease assessment
- Blood Investigations & cultures

Multidisciplinary input (cardiology, cardiac surgery,cardiac anaesthetist ,neurology, pulmonology, nephrology, infectious diseases) is essential for high-risk patients.

Case Report

44-year-old Male

Diagnosis: Congenital Heart Disease – Bicuspid aortic valve with severe aortic regurgitation and stenosis, ascending aortic aneurysm, severe pulmonary arterial hypertension (PAH), aspiration pneumonitis, seizure disorder (GTCS).

Medical History :

- Known case of Adult Congenital Heart Disease (ACHD).
- Previous surgery: Aortoplasty and PDA ligation (1999).
- Recent GTCS episode with aspiration pneumonia.
- Underlying comorbidities: Bilateral lung infection, seizure disorder, pulmonary hypertension, acute kidney injury.

Surgical Intervention

- Bentall Procedure: Replacement of aortic valve and ascending aorta using a 25 mm St. Jude mechanical valve and 28 mm Dacron graft.
- CABG x1: Saphenous vein graft to distal RCA.
- IABP insertion: Following intraoperative ST segment changes and hemodynamic instability.

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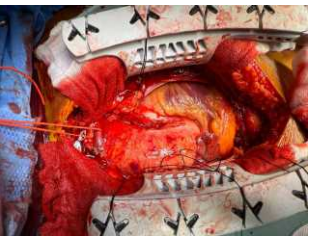
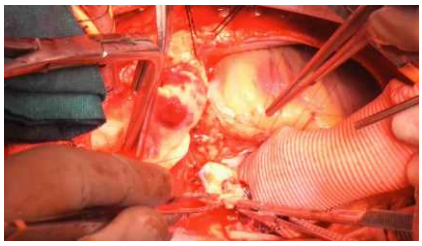
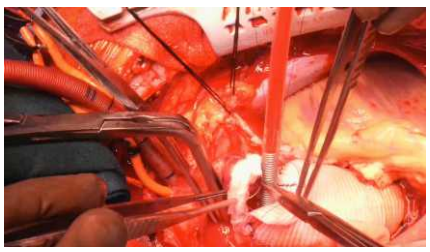
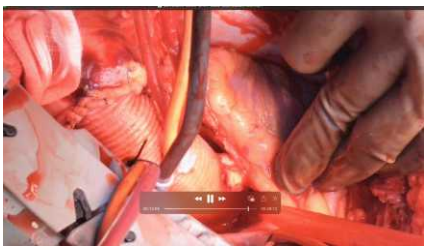

Intraoperative Findings:

- Calcified bicuspid aortic valve.
- Enlarged ascending aorta and aortic root
- Coronary arteries reimplanted

Postoperative Course

- Ventilatory and inotropic support initiated in CTICU.
- **Neurology :** No new deficits; seizure prophylaxis continued.
- **Infectious Disease :** Broad-spectrum antibiotics administered based on suspected aspiration and culture results (Meropenem, Teicoplanin, Doxycycline).
- **Nephrology:** Managed AKI; creatinine peaked at 2.0 mg/dL.
- **Pulmonology:** Managed post-aspiration pulmonary infection.
- **Transfusions :** PRBC administered pre- and post-operatively.
- Fever spikes – resolved with antibiotics .
- Pedal and upper limb edema – managed with fluid restriction.
- Low platelet counts – supportive care.

Echocardiography (Post-op) :

- Good prosthetic valve function.
- EF 60%.
- Moderate PAH
- Patient hemodynamically stable, afebrile, extubated, and neurologically intact.
- On oral anticoagulation, antibiotics, and regular follow-up plan.
- Wound sites clean and healing well.
- Advised to continue regular cardiac follow-up and infection prophylaxis.
- Pt discharged on 9 th POD . Pt doing well

Conclusion :

The Bentall procedure remains the gold standard for combined aortic valve and root pathology. With advancements in surgical techniques and perioperative care, even high-risk patients can have excellent outcomes. Early diagnosis, timely referral, and a coordinated care approach are crucial for success.

CT Aortogram report

- Bicuspid aortic valve with moderate calcifications.
- Diffuse fusiform dilatation of aortic root and ascending thoracic aorta - Aortic aneurysm.
- No dissection/intramural haematoma/ulcerations in abdominal aorta and thoracic Aorta.
- Abdominal aorta and rest of the descending thoracic aorta shows normal calibre.

Post Operative Image Pre Operative Image

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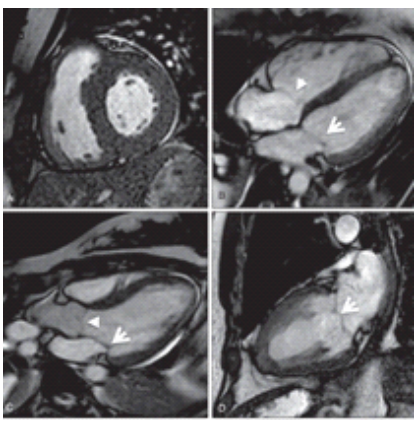
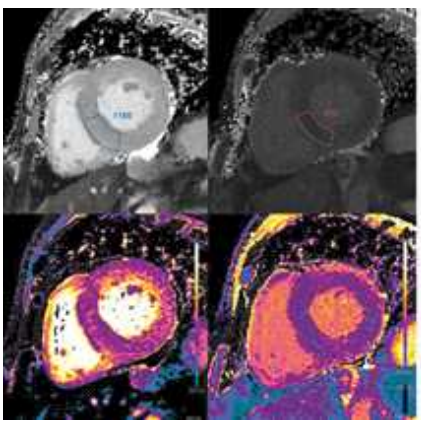
Role of Cardiac MRI in Clinical Practice

Dr. S. Senthilkumaran
M.D (Radio Diagnosis).,
HOD & Consultant Radiologist

Dr. S. Rajadirajan
MD, FRCR.,
Consultant Radiologist

Royal Care Super speciality Hospital is equipped with a state-of-the-art 3T MRI for cardiac studies. Cardiac Magnetic Resonance Imaging (CMR) is a powerful noninvasive tool that provides a comprehensive assessment of cardiac anatomy, function, perfusion, and tissue characterization without ionizing radiation. Cardiac MRI is preferred for the following conditions.





1. Assessment of Cardiac Anatomy and Function

- Cardiac MRI is the gold standard for quantifying left and right ventricular volumes, mass, and ejection fraction.
- Accurately assesses regional wall motion abnormalities.
- In congenital heart disease, it provides excellent visualization of complex anatomy, shunts, and great vessel abnormalities, aiding preoperative planning and postoperative follow-up.

2. Ischemic Heart Disease

- Myocardial viability assessment using Late Gadolinium Enhancement (LGE) differentiates viable from non-viable myocardium and guides revascularization decisions.
- Myocardial perfusion imaging detects inducible ischemia during stress MRI using agents like adenosine, regadenoson, or dobutamine. It is comparable to nuclear perfusion imaging but radiation-free.

3. Cardiomyopathies

- Dilated cardiomyopathy (DCM): Measures chamber dilation and function; LGE pattern differentiates idiopathic from ischemic DCM.
- Hypertrophic cardiomyopathy (HCM): Identifies pattern and extent of hypertrophy, fibrosis, and risk of sudden cardiac death.
- Restrictive and infiltrative cardiomyopathies: Tissue characterization for amyloidosis, sarcoidosis, and hemochromatosis using T1/T2 mapping and LGE.
- Arrhythmogenic right ventricular cardiomyopathy (ARVC): Visualizes fatty infiltration, RV dilation, and regional wall motion abnormalities.

4. Myocarditis and Pericardial Disease

- Myocarditis: T2 mapping and LGE detect inflammation, edema, and necrosis.
- Pericarditis / constrictive pericarditis: Demonstrates pericardial thickening, inflammation, and ventricular interdependence; differentiates constrictive pericarditis from restrictive cardiomyopathy.

5. Valvular Heart Disease

- Quantifies regurgitant volumes and fractions accurately.
- Assesses flow patterns and velocity using phase-contrast imaging.
- Useful in complex or multi-valvular disease and post-intervention assessment.

6. Masses and Thrombi

- Differentiates tumors from thrombi using contrast enhancement patterns.
- Characterizes intracardiac and pericardial masses with high soft-tissue resolution.

7. Role in cardiac Transplant - Detection of Acute Allograft Rejection (AAR)

Tissue Characterization:

- T2 Mapping: Detects myocardial edema (marker of inflammation).
- T1 Mapping and Extracellular Volume (ECV): Quantify diffuse myocardial injury and interstitial expansion due to rejection or fibrosis.

Noninvasive Biopsy Alternative:

- Rejection grades correlate with elevated T2 and T1/ECV values, offering a potential alternative or complement to endomyocardial biopsy, reducing its frequency.

Monitoring Therapy Response:

- Serial mapping allows assessment of improvement or progression after immuno suppressive therapy.

8. Emerging and Specialized Uses

- T1/T2 mapping and extracellular volume (ECV): Quantify diffuse fibrosis and edema.
- 4D flow MRI: Provides comprehensive visualization of blood flow dynamics.
- Congenital and pediatric applications: Detailed anatomic and functional information without radiation.

Advantages of Cardiac MRI

- No ionizing radiation
- High spatial and temporal resolution
- Comprehensive evaluation (structure, function, tissue) in a single exam No absolute contraindications as most of the currently used implants and devices are MR compatible

Congratulations to Dr. M.N. Sivakumar,
Head, Institute of Critical Care Medicine, on receiving the Presidential Citation Award at the National Conference in Cochin — a true reflection of excellence, leadership, and dedication in Critical Care Medicine.

A race against time – Emergency Bronchial Repair in a young boy

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Tracheobronchial injury is an uncommon injury after blunt trauma. It is often associated with other fatal injuries. Here, we describe a case of early identification of a bronchial injury after a motor vehicle accident

A 24-year-old male with a history of a road traffic accident was admitted to the emergency department, and in view of deteriorating GCS, he was intubated. Chest X-ray showed a right-sided pneumothorax for which an intercostal tube drain was placed. CT scan of the whole body as a part of the trauma protocol showed a significant pneumo mediastinum(fig.1)and transection of the right main bronchus(fig.2)andextensivesurgical emphysema(fig.3 and 4)Multiple fractures involving ribs, spinous process noted. No intracranial, intra-abdominal, or vascular injuries were seen. Surprisingly, he maintained tidal volume while on a ventilator, and there was no air leak in the intercostal drain.

Fig. 1

Fig. 2

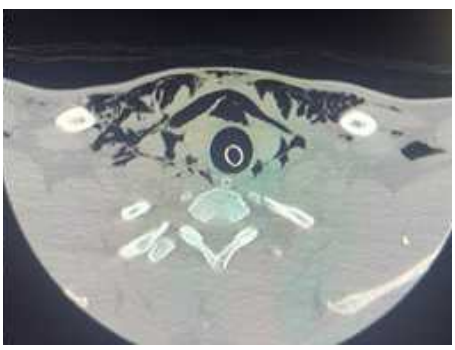


Fig. 3

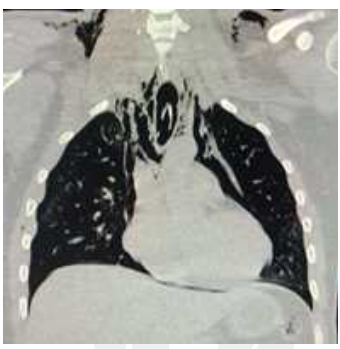


Fig. 4

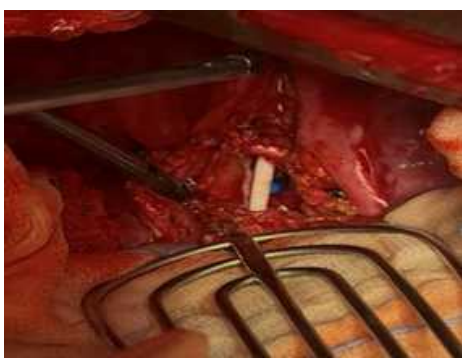


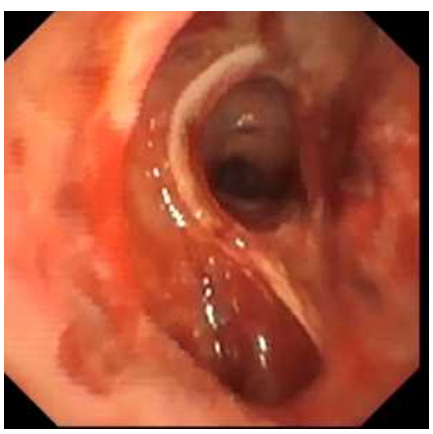
Fig. 5

A flexible bronchoscopy showed a 2cm total disruption of the right main bronchus except for the small segment of posterior wall with all surrounding tissue overhanging the defect. The patient was immediately planned for primary surgical repair via right posterolateral thoracotomy. Intraoperatively, the edges of the defect were identified, and also with the help of a flexible bronchoscope (fig.5)

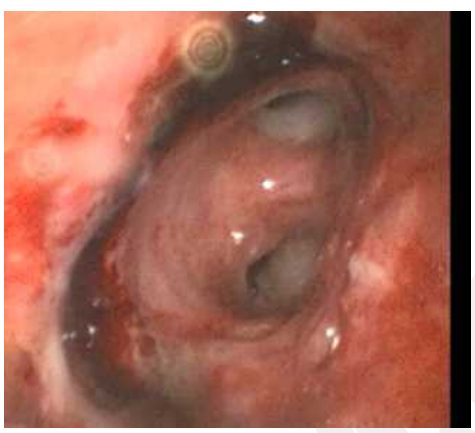
Discussion:

Tracheobronchial injury is a rare but morbid injury. In a large trauma, autopsy series 2% where found to have a tracheobronchial injury.Of those, 81% died at the scene, mostly from associated injuries. Motor vehicle accidents are the most frequent mechanism. Most injuries occurred within 2 cm of the carina. Injury to the right main bronchus is more common and diagnosed earlier. This is thought to be due to the fact that the left main bronchus is protected by the aorta. The median days until diagnosis for the left-sided injury was 30 days. The presentation for late diagnosis is often a persistent pneumothorax. Historically, the outcome for left-sided injuries is more favourable than the right side, with a mortality rate of 8% compared with 16%. The initial management should follow the advanced trauma life support protocol. Findings on chest X-ray can include pneumothorax, pneumo mediastinum, and subcutaneous emphysema surrounding deep cervical tissue. "Fallen lung sign," where the collapsed lung falls away from the mediastinum, is not often seen, but is specific to bronchial injury. Findings in CT are similar to those of chestX-ray. The definite diagnosis is made with the bronchoscopy.

Surgical repair should be performed as soon as possible. If an injury is identified, early primary repair should be attempted. The mortality for those who underwent primary repair was lower than those who underwent resection of the injured bronchus and distal lung parenchyma{3% versus 30%}. The outcome of non operative management is generally worse than that of operative management. The operative approach differs depending on the location of the injury. Cervical tracheal injury is repaired via collar incision. Distal trachea, carina, and right main stembronchus are approached through right postero- lateral thoracotomy. Left main bronchusisapproac hedvialeft posterolateralthoracomy. Debridement and end-to-end anastomosis should be attempted for significant tracheal and bronchial injuries. Pneumonectomy should be avoided if possible. A muscle flap is sometimes used to help with the reconstruction. Lobectomy is performed if the injuries are associated with lobar destruction. Post-repair complications include pneumonia, suture granuloma, wound infection, fistula, and stricture. A broncho or tracheo-esophageal fistula may require resection and reconstruction. Viable tissue coverage is necessary. A stricture may be temporarily stented or undergo laser fulguration.



Preoperative image of the resected right main bronchus.



Postoperative image

Take-home message :

Tracheobronchial injuries are a rare but morbid injury. Suspect when there is a continuous air leak in the intercostal tube with extensive surgical emphysema around the neck. Prompt imaging with a CT scan and 3D reconstruction of the tracheobronchial tree, along with flexible bronchoscopy, will confirm the diagnosis and provide a detailed anatomical description for surgeons to meticulously plan the approach and repair techniques.

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