

A Knowledge Sharing Initiative by Medanta

Jay Prabha Medanta Hospital, Patna Launches Comprehensive Cancer Care Programme with Eastern India's First Varian Edge Machine



(Medical Director, Medanta Patna) and eminent oncologists.

After a walkthrough of the state-of-the-art cancer facility, Dr. Trehan addressed the gathering. "Medanta's Comprehensive Cancer Care Programme is equipped with high-end Varian Edge Radiation Machine, which will prove to be a milestone in Bihar's fight against cancer. This machine will help our experts treat tumours of any size and shape in any part of the body, even places that are hard to reach, with submillimetric precision. This machine will help deliver radiation with high precision and minimal impact on the healthy surrounding tissue, reducing morbidity and mortality."

Led by some of the best doctors in the country, Medanta Patna's Comprehensive Cancer Care Programme creates an ecosystem supported by modern infrastructure, cutting-edge imaging and diagnostic machines, and advanced technologies, making it one of the most advanced facilities for cancer treatment in this part of the country. This will eliminate the need for patients to travel long distances for a second opinion or treatment.

The facility has highly specialised and dedicated teams of doctors comprising of organ-specific cancer surgeons, medical oncologists, radiation oncologists, haemato-oncologists, pathologists, radiologists, interventional radiologists, and oncology nurses to systematically assess each patient and provide an individualised, evidence-based treatment plan. The facility offers Total Body Irradiation needed for Bone Marrow Transplant patients. Other advanced therapies include Stereotactic Radiosurgery (SRS), Stereotactic Radiotherapy (SRT), Rapid Arc Therapy.



Bringing world-class cancer care to the region, Bihar Chief Minister Shri. Nitish Kumar inaugurated Eastern India's first Varian Edge Radiation Machine and launched the Comprehensive Cancer Care Programme at Medanta Patna in the presence of Dr. Naresh Trehan (Chairman and Managing Director, Medanta), Mr. Pankaj Sahni (Group CEO and Director, Medanta), Dr. Ravi Shankar Singh

Medanta@Work

A Rare Case of Giant Retroperitoneal Liposarcoma Extending to Right Inguinal Canal

Retroperitoneal sarcomas are relatively uncommon, constituting only 10%-15% of all soft tissue sarcomas. Its incidence in men and women is almost the same, and the disease usually presents itself in the fifth decade of life.

Retroperitoneal liposarcoma is one of the most common forms of retroperitoneal (abdominal) sarcoma, and its treatment is quite challenging because of its subtle symptoms and the location of the tumour. This often leads to delayed diagnosis and the location, with ambiguous planes, poses challenges in surgical clearance of the tumour. We report one case of a giant retroperitoneal liposarcoma extending to the right inguinal canal and deep into the pelvis, almost till the pelvic floor.

Case Study

A 71-year-old man farmer by profession, presented at Medanta - Patna with the chief complaints of a mass in the abdomen that had been increasing gradually for the last four years, and an insidious swelling of the right groin for the last two years. He was also experiencing early satiety and generalised weakness for the last six months. He had no other bowel- and bladder-related symptoms.

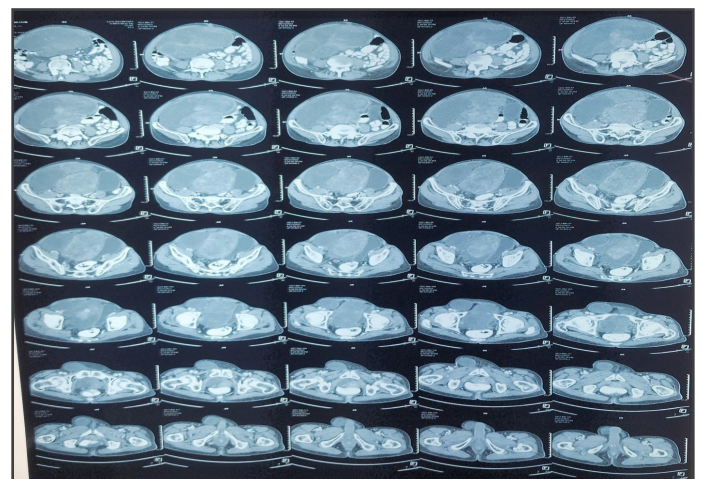
He was examined and his Eastern Cooperative Oncology Group (ECOG) performance score came 1 on a scale of 0 to 5, where 0 indicates full activity and 4 is associated with complete disability followed by death.

The patient had mild pallor but not icterus or palpable neck nodes. Abdominal examination revealed a huge multi-lobulated, intra-abdominal, retroperitoneal mass encompassing almost his entire abdomen extending from epigastrium superiorly to the hypochondrium inferiorly.

It also extended deep into the pelvis except for left the hypochondrium. The mass was extending to the right inguinal canal as well, protruding through the deep inguinal ring and reaching up to the inguinoscrotal region.

All parameters measured in the routine blood reports were within range except for his haemoglobin (Hb) level, which was 10gm/dl. He was further evaluated with a contrast-enhanced CT (CECT) scan of the abdomen and pelvis, which showed a large multiseptated cystic lesion, predominantly solid in its lower half involving the entire abdomen and pelvis – mostly on the right side and central part of the abdomen – measuring 25cm x 15cm x 12cm. Solid and septate parts of the mass showed heterogeneous enhancement on the CECT scan.

The mass was extending from the lesser sac superiorly up to the deep pelvis inferiorly. The mass was causing right-sided hydronephrosis, compressing the infrarenal inferior vena cava (IVC) and aorta, and abutting the right common and the external iliac vessels. It was displacing the urinary bladder towards the extreme left pelvic wall. The mass was extending deep into the pelvis through the retrorectal and right pararectal space, reaching almost up to the pelvic floor and displacing the prostate antero-laterally. One of the extensions from the mass was seen going up to the right inguinoscrotal region through the deep ring.



Retroperitoneal tumour compressing the urinary bladder to left lateral pelvic wall; extension into right inguinal canal seen

We did an ultrasound-guided core needle biopsy for the patient. It showed a lesion composed of interlacing bundles of spindle cells with a fibrocollagenous stroma and numerous multinucleated tumour giant cells, suggestive of spindle cell tumour with possible differentials being gastrointestinal stromal tumour (GIST) and deep fibromatosis.

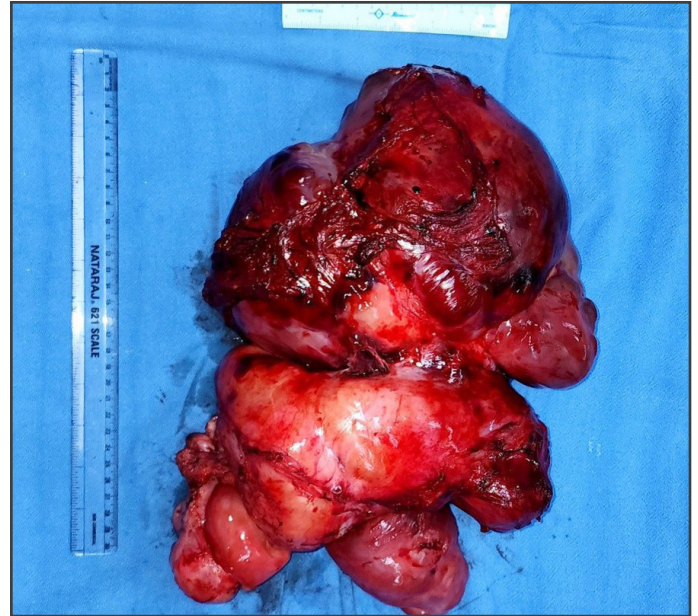
We also did an immunohistochemistry (IHC) test for confirmation and subtyping.

The smooth muscle antibody (SMA) test was positive, GIST-1 (DOG-1) was negative, desmin was negative, S-100 was negative, β catenin was negative, cluster of differentiation 117 (CD-117) was also negative with Ki-67 index of 2%-3%.

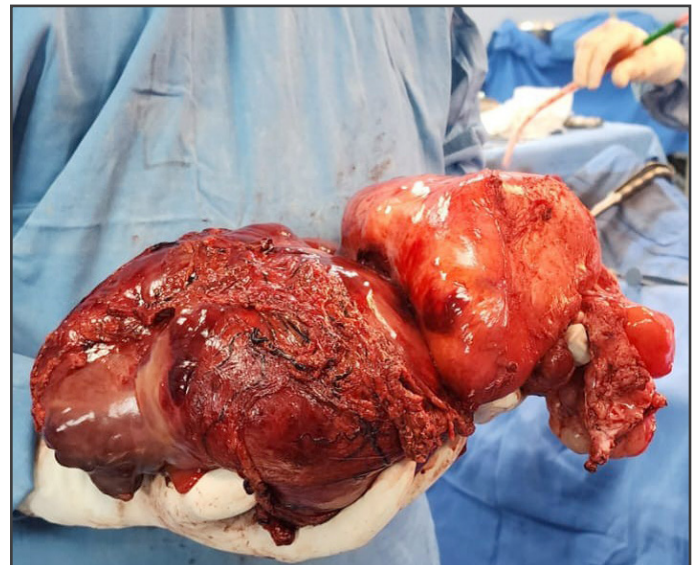
The case was discussed in the multidisciplinary tumour board consisting of medical oncologist, urooncologist, radiation oncologist, pathologist and radiologist, and was planned for surgical resection with intent of R0.

The surgery was started with prophylactic stenting of ureters in view of gross right hydronephrosis, extreme displacement of urinary bladder to the left, and for easy intra-operative identification of the ureters. Midline laparotomy revealed a huge retroperitoneal mass measuring approximately 32cmx22cm, extending from the lesser sac (behind the stomach), displacing the entire bowel loops antero-laterally and extending deep into the pelvis till the abdominal floor. The mass was cautiously dissected from the stomach, large and small bowels and from the adherent right ureter and right-sided external iliac vessels.

The intervening plane between the tumour and urinary bladder was poorly defined with thinned out bladder wall. During dissection of the tumour, there was an iatrogenic perforation of the dome of the urinary bladder wall, which was repaired in two layers using 2-0 polyglactin continuous sutures. As the lesion was also extending into the right inguinal canal through the deep ring, a herniotomy was done; inguinal portion of the mass was dissected and delivered into the abdominal cavity carefully without disrupting it. The retrorectal and pararectal dissection was done with a delicate mix of sharp and blunt dissection and superior traction, releasing it from the prostate side wall. In this way, the entire mass was removed en bloc.



The entire tumour removed en bloc



Lobulated tumour

The five-hour-long surgery was uneventful and the patient could be extubated immediately after the procedure. He was discharged on Day 7 after the procedure with a wide-bore foley catheter in situ.

Final histopathology report showed a mass of 4.2kg, measuring 33cmx21cmx12cm, microscopically suggestive of well-differentiated liposarcoma with dedifferentiation to low-grade myxosarcoma. On the Fédération Nationale des Centres de Lutte Contre le Cancer (FNCLCC) grading, the tumour differentiation score was 1, mitotic count was 1-3/10, HPF score was 1, histologic grade G1 (low grade), with tumour necrosis: score 1.

The patient's histopathology report was discussed in the tumour board. Owing to the large size of the lesion, close proximity to the lower third of the urinary bladder and dedifferentiation of the tumour, it was decided to put the patient on adjuvant radiation.

The patient has recovered well from surgery and is currently undergoing adjuvant radiation therapy.

Discussion

Well-differentiated sarcoma with dedifferentiation is a rare and aggressive form of cancer that presents a unique challenge for clinicians and patients alike. Initially, this type of sarcoma exhibits well-differentiated characteristics, meaning that the cancer cells closely resemble normal tissue cells and tend to grow at a slower rate. However, over a period of time, a subset of these well-differentiated cells may undergo dedifferentiation transforming into more undifferentiated and aggressive cancer cells with increased proliferation potential. This process can lead to a significant change in tumour behaviour and resistance to conventional treatments.

This case is unique due to its subtle presentation and progression over a span of four years. Final histology showed a dedifferentiation of the liposarcomatous tumour which makes it even more intriguing. Adjuvant radiation therapy is given to patients in situations when the tumour is close to vital structures and a recurrence would lead to high morbidity. In our case, the tumour had indistinct planes with lower third of the urinary bladder.

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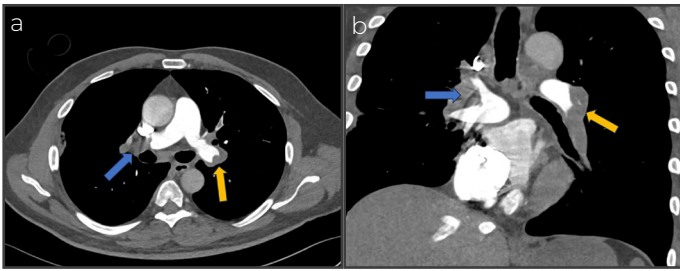
Massive Pulmonary Embolism by Thrombectomy

Massive pulmonary embolism is a challenging scenario for any medical professional considering the narrow time window it permits for diagnosing and managing the case. High degree of clinical suspicion with appropriate battery of investigations is important for accurate diagnosis and excluding the mimics of pulmonary embolism. In such clinical scenarios, imaging plays a vital role in establishing the diagnosis and determining the thrombus load. Often the statistics are not great despite the best efforts of a the Pulmonary Embolism Response Team (PERT), which includes experts from cardiac imaging, interventional radiology, interventional cardiology, cardiac surgery, and critical care team. Hereby, we highlight one such case of massive pulmonary embolism that was managed by pharmaco-mechanical thrombectomy.

Case Study

A 63-year-old male, a cancer survivor, operated twice for carcinoma of the mandible in 2009 and then for carcinoma of the tongue in 2022 presented to the emergency of Medanta Lucknow in a state of shock. He was initially managed with intravenous fluids and inotropes. On evaluation, HS troponin I (328.2 ng/L) and NT pro-BNP (1900 pg/mL) were raised, and echocardiography revealed features of right ventricular strain, including bulging of interventricular septum towards left, and increased RV:LV ratio with normal left ventricular systolic function and an ejection fraction of 55%.

However, the main pulmonary artery was normally visualised on echocardiography. So, suspicion of myocardial infarction and pulmonary embolism were raised. CT pulmonary angiogram was done, which showed thrombosis of bilateral pulmonary arteries, features of right ventricular strain and an area of infarct in right middle lobe.

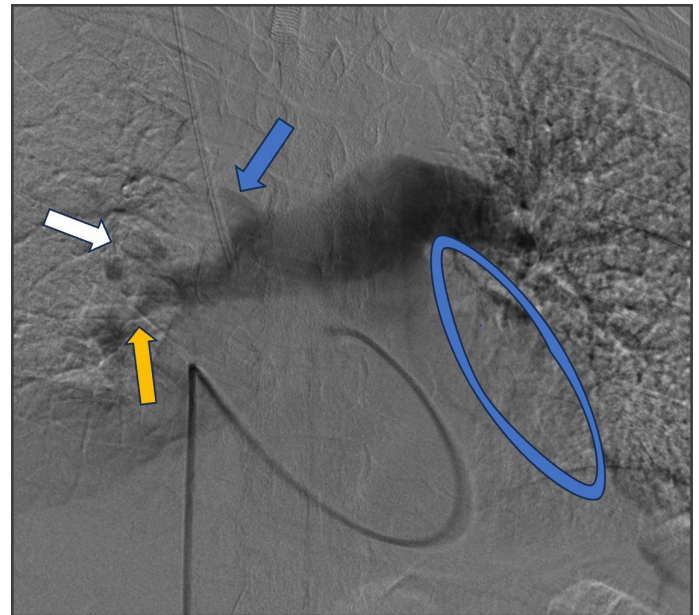


CT pulmonary angiogram showing acute pulmonary thrombosis (a) Axial sections showing non-enhancing hypoattenuating thrombus in right (blue arrow) and left pulmonary arteries (yellow arrow). (b) Coronal sections showing thrombosis at the bifurcation of right (blue arrow) and left (yellow arrow) pulmonary arteries with minimal contrast opacification along the periphery.

By around 11PM on Day 1, the critical care medicine and interventional radiology team discussed with the patients' family the steps that were needed to be taken of his critical condition. The clinical condition of the patient deteriorating, and his vasopressor support along with oxygen requirement was increasing.

In view of the difficult intubation and possible need of tracheostomy, head and neck oncology team was informed. After discussion with family and relevant departments, patient underwent nasal intubation and was immediately shifted to the digital subtraction angiography (DSA) laboratory for pulmonary thrombectomy by around 12:30 AM.

Under aseptic conditions, access was taken via right common femoral vein, 16F long sheath inserted and 5F Picard catheter was advanced into the right atrium over floppy-tip guidewire. The sheath was advanced over the catheter-wire assembly and parked at cavo-atrial junction. Catheter-wire assembly was negotiated through the right ventricle into main pulmonary artery. After this, an angiogram was taken and the pressure was measured (main pulmonary artery pressure - 45mmHg). Over the wire, computer-assisted vacuum thrombectomy (CAVT) was done with FLASH-16 and Lightning-12 catheters that were advanced in the pulmonary arteries and multiple passes were taken.

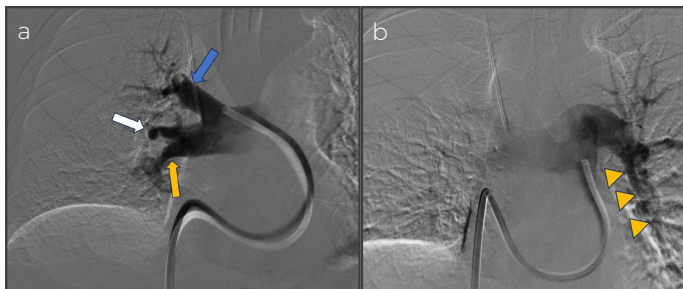


Pre-thrombectomy pulmonary angiogram showing filling defect in right upper lobe segmental branch (blue arrow), right interlobar artery (yellow arrow) and right lower lobe segmental branches (yellow arrow) without any opacification of sub-segmental branches.

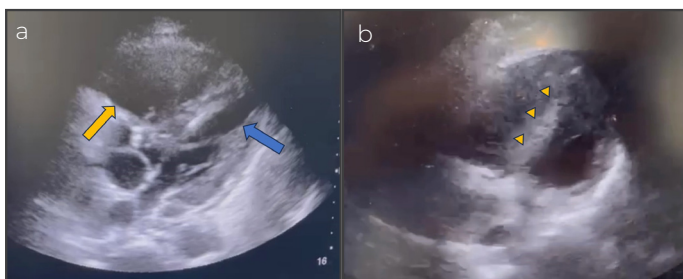
There was non-opacification of left interlobar artery and lower lobe segmental branches (blue ellipse) with normal contrast opacification of left upper lobe segmental branches.

Despite few passes, there was no improvement in the haemodynamic parameters. Therefore, a small dose of alteplase (total of 5 mg) was administered after cannulating different interlobar arteries. Further passes were taken in interlobar arteries afterwards using Lightning-12 catheter, which resulted in decent recanalisation. There was some hemodynamic improvement after reducing the clot burden of interlobar arteries. On the table, echo was repeated. It showed some improvement in right heart contractility. At this point, pulmonary artery pressure measurement was repeated, which was around 28mmHg - a significant drop in comparison with pre-procedure PAP (pulmonary artery pressure).

After discussion with the CCM and anaesthesia team, and looking at the haemodynamic parameters of the patient, a decision to not take further passes was taken and the patient was shifted to the ICU.



Post-thrombectomy pulmonary angiograms showing (a) adequate contrast opacification in right upper lobe segmental branch (blue arrow), right interlobar artery, right middle lobe (white arrow) and lower lobe segmental branches (yellow arrow) with few eccentric filling defects. (b) Contrast opacification of left interlobar artery and lower lobe segmental branches (yellow arrow) are noted.



(a) Pre- procedure echocardiography showing enlarged right ventricle (yellow arrow) with increased RV:LV ratio and bulging of interventricular septum resulting in decreased LV volume (blue arrow). (b) Post-thrombectomy echocardiography showing improvement in the RV: LV ratio with normal position of interventricular septum (yellow arrow).

On Day 2, his blood pressure stabilised, his vasopressors support could be taken off and he was extubated by evening. On Day 3, the patient was shifted to the ward and eventually, he was discharged in a stable condition on oral anti-coagulation medications, and with the advice of close follow-up.

Conclusion

- Saving a life is teamwork, especially in emergency scenarios where the best of minds and hands must be on their toes. The contribution of emergency, critical care medicine, cardiology and anaesthesia team in managing this case is hugely praiseworthy. This is how the concept of PERT works, wherein different specialties work in concordance to save a life.

- Never giving up on a patient can make a lot of difference, as it was in this case wherein the patient was a cancer survivor and was on chemotherapy. However, with the right kind of treatment, recent hardware, AI based softwares along with the support of family members and multidisciplinary team of doctors, his life could be saved.
- Tailoring treatment on case-to case basis is the need of the hour. As in this case, thrombectomy with instillation of thrombolytic agents proved better than isolated mechanical thrombectomy.
- Large bore devices definitely reduce time and with computer assisted AI software, the blood loss is minimum.
- Striving to achieve imaging perfection is not needed (and at times might be detrimental to pulmonary arteries) while doing these thrombectomies as even a small increase in lung perfusion adds to significant decrease in cardiac preload.

When to stop is as important as knowing when to begin.

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Spotlight

Medanta's Monthly Talk Show on Cardiac Care - Heart 2 Heart - Features Leading Cardiac Experts



On 15th of every month, leading Medanta Heart Experts and community-based practitioners will join LIVE on social media channels to discuss advanced cardiac health related topics and the rapidly evolving technology that can be adopted to make cardiac care safer for all, including patients who are at high risk and those for whom surgery may not be possible.

Featuring doctors from tier 1, tier 2 and tier 3 cities, this talk show aims to create engagement with the public to strengthen conversation around cardiac care, tackle myths and misconceptions pertaining to heart diseases and its prevention, and sensitize the public on the steps they can take to live a heart healthy life.

The talk show is an invaluable resource for individuals seeking trustworthy cardiac care information. Through presentations and structured Q&A sessions, complex cardiac conditions will be explained in an easy-to-understand manner. It will also help those who are hesitant to seek an opinion gain clarity so they can decide their next steps.

Kudos



Welcome Onboard



Dr. Ameeta Koul

Consultant - Ophthalmology
Medanta - Gurugram

Highly skilled and experienced clinician with specialisation in diagnosis, treatment and management of corneal pathologies, cataract and refractive errors of the eye to provide comprehensive and integrated care.





Dr. Bhagyamani

Associate Consultant
Gastroenterology

Medanta - Patna

Dr. Bhagyamani is an expert in diagnostic and therapeutic endoscopy, ERCP, oesophageal manometry, dyspepsia, IBS, GERD, pancreatitis and cirrhosis.



Dr. Rahul Kumar

Associate Consultant
Gastroenterology

Medanta - Patna

Dr. Rahul Kumar is a promising gastroenterologist and hepatologist in India. He has completed his DM Gastroenterology from IGIMS Patna in 2023 and has been awarded with Gold Medal in his University.



Dr. Gita Bipin Chandra

Associate Consultant - Nephrology

Medanta - Patna

Dr. Chandra specialises in transplant immunology, glomerulonephritis and nephrological interventions.



Dr. Vivek Sabharwal

Associate Consultant - Internal Medicine

Medanta - Gurugram

Dr. Vivek Sabharwal has over seven years of experience in the field of Internal Medicine and Diabetology. He has expertise in handling patients in sepsis, respiratory illnesses, chronic obstructive pulmonary disorder, gastrointestinal infections, acute and chronic fevers.



Dr. Meetu Kumari

Associate Consultant - Cardiology

Medanta - Patna

Dr. Kumari specialises in cardiac emergency, coronary artery angiography (CAG), temporary pacemaker implantation, PPI (single chamber), pericardiocentesis, and other non-invasive cardiac procedures.



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