



RADIOLOGY NEWS

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Dear Colleagues,

As co-editors we are extremely pleased to present this third and final e-newsletter for the current council of Sri Lanka College of Radiologists (SLCR). It is with great pleasure that we inform the membership of our accomplishments during our tenure as editors of SLCR thereby upholding the confidence entrusted on us by you.

During our tenure we were able to publish three newsletters, articles related to radiology on national press and SLMA publications. Our most important achievement on behalf of SLCR was publishing of Sri Lanka Journal of Radiology as an international online journal on Sri Lanka Journals Online (SLJOL) web site. This e-journal is a platform to present your research and scientific writing to international community. We invite the membership to actively contribute to future college publications and make maximum use of the opportunities created. We as editors are grateful to all the members who submitted articles and research papers to college publications during our tenure.

The Editors



**Save A Tree:
Say NO to Paper**

In this issue-

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It gives me a great pleasure sending this message to the news letter which is being released at the dawn of 14th Annual Academic Sessions.

I wish to reiterate the motive of SLCR of uplifting the standards of radiology in srilanka and annual sessions serve as an integral part of its academic commitments.

The Annual Academic Session is an ample demonstration of collective effort of the members of SLCR who work tirelessly to provide much needed professional knowledge to the radiology community in Srilanka. The Annual Academic Sessions for year 2015 will be held from 28th- 30th of August at Hotel Galadari.

Theme of Scientific Sessions in this year is "Novel approach to Chest and Cardiac imaging" which is equally important to generalists as well as subspecialists

I believe the theme is very topical in the backdrop of unprecedented increase in chest malignancies and coronary cardiac diseases in the developing world and the vital role played by the imaging and the interventional radiologists in this clinical scenario.

SLCR has also organized a pre congress workshop on breast imaging with the view of updating the Srilankan radiologists on the recent trends in breast imaging and interventions.

During Scientific Sessions and pre congress workshop, a panel of world renowned Radiologists will share their knowledge and experience with us. SLCR is enormously thankful to them and cordially welcome them to the scientific sessions.

The time tables for both Scientific Sessions and Pre congress workshop will soon be made available to the SLCR membership.

Limited availability of High end Radiological equipment and non availability of subspecialty Radiologists are two of the burning issues in the subspecialty of chest imaging. As the premier professional body in radiology, SLCR is ready to take these matters up with administrative and academic authorities in due course.

**Dr. Chandra Sirigampala,
President,
The Sri Lanka College of Radiologists**

Annual Academic Sessions 2015 - Pre congress workshop

28th August

7. 30 - 8. 00 am	Registration
8. 00 - 8.05am	Introduction by Chairperson
8. 05 - 8. 45am	Breast screening programme in Australia
8. 45 - 9. 15am	Radiological management of breast cysts
9. 15 - 9. 45am	Imaging of post therapy breast
9. 45 - 10. 15am	Tea
10. 15 - 10 .30am	Work station demonstration
10. 30 - 11. 00am	How I do it? - pre-operative localization & specimen radiography
11 00 - 11. 30am	Breast imaging - Non palpable breast lesions; Local experience
11. 30 - 12. 00 pm	cases presentation - I MRI Breast with pathological correlation
12. 00 - 12. 30pm	case presentation - II Pearls and pitfalls in breast imaging
12.30pm	Lunch

Annual Academic Sessions 2015- Program D1 – 29th August

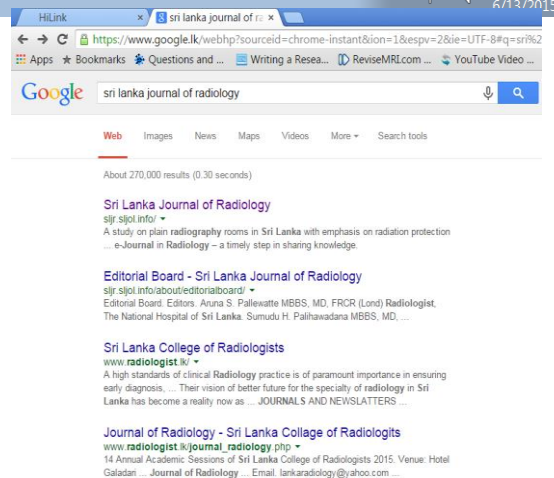
Date	Topic	Speaker
7. 00 - 8. 00	Registration	
8. 00 - 8. 30 a m	How I do CT chest &HRCT – Technical aspects	Dr Vimal Raj
8. 30- 9.00 a m	What does a physician want from CT chest &HRCT report	Dr Amitha Fernando
9. 00 - 9. 30 a m	Interstitial lung disease -Practical approach 1	Dr Conor Murray
9. 30 - 10.00 am	Interstitial lung disease -Practical approach 11	Dr Conor Murray
10.00 - 10.30 am	Tea	
10.30 - 11.00 am	Useful known little signs in chest CT	Dr Conor Murray
11.00- 11.30 am	CT Chest in immunocompromised patient	Dr Devinda Karunarathna
11.30 - 11.50pm	CT imaging of emphysema – Evolving concepts	Dr Vimal Raj
11. 50- 12.30 pm	Free papers Parallel sessions	
12. 30- 1. 30 p m	Lunch	
1.30 - 1.50 pm	Demonstration by Event Sponsors	Mediquipment Pvt Ltd
1.50 -2.10 pm	CXR for Thoracic emergencies	Prof Mini Pakkal
2.10 - 2. 40 pm	Real world management of pulmonary nodule beyond Fleischner	Dr Conor Murray
2. 40 - 3. 10 pm	How I approach a case of lung cancer	Dr Vimal Raj
3. 10- 3.30 pm	Tea	
2. 30 - 4. 30pm	CT Chest-Self assessment Quiz- Review of cases with answers	Foreign faculty
4.30 - 5. 15 pm	CXR -Quiz	Dr Deepthi Jayasinghe

Annual Academic Sessions 2015- Program D2 – 30th August

Time	Topic	Speaker
8.00 - 8.30 am	The heart and haemodynamics on routine chest CT	Dr Conor Murray
8.30 - 8.50 am	Coronary CT angiography –Patient preparation & image acquisition	Prof Mini Pakkal
8.50 - 9.30 am	Coronary CT angiography- HOW I report it -Case based study	Prof Mini Pakkal
9.30- 10.0am	Cardiac CT for congenital heart disease	Dr Devinda Karunarathna
10.00 - 10.30am	Tea	
10.30 - 10.50am	Paediatric cardiac imaging	Dr. Aruna S Pallewatte
10.50 - 11.20am	Role of Cardiac MRI in cardiac imaging	Dr Vimal Raj
11.20 - 11.5 am	My approach to CT pulmonary angiogram- Technique and interpretation , pearls and pitfalls	Dr Vimal Raj
11.50 - 12.10pm	Pulmonary embolism-Ideal imaging & current trends	Prof Mini Pakkal
12.10 - 12.30pm	Assessment of mediastinal masses	Dr Devinda Karunarathna
12.30 - 1.30pm	Lunch	
1.30- 2.00pm	Acute lung disease (non thrombo embolic)	Dr Conor Murray
1.00 - 2.30pm	Multi modality assessment of Pleura	Dr Devinda Karunarathna
2.30 - 3.10 pm	Use of PET –CT in cardio -thoracic imaging	Prof Mini Pakkal
3.10- 3.30pm	Tea	
2.30 - 4.00pm	Interventions in thoracic pathologies	Dr Devinda Karunarathna
4.00- 5.00pm	CT Chest-Self assessment Quiz-Review of cases with answers	External speaker
5.00pm	Closing ceremony	

Sri Lanka Journal of Radiology

We are happy to introduce the online version of The Sri Lanka Journal of Radiology which is an important milestone in uplifting the scientific publications of Sri Lankan Radiologists to the international arena. The journal and articles can be accessed by typing *sljr.sljol.info* on web browser or by a google search. This is published on *Sri Lanka Journals Online* which also hosts most of the leading Sri Lankan Scientific e-Journals in collaboration with INASP and Ubiquity Press in UK. It is also available via Facebook and twitter. Some screenshots are shown below.



We invite all of our members to contribute their high quality research articles, review articles, case series etc. The submission procedure and the guidelines are available on the journal itself. This journal publishes new articles after blind peer review process on a continuous cycle throughout the year. The SLJR hopes all its members make it a point to be a part of this greatest academic endeavour by taking into research and publishing.

If you need any further information please feel free to contact the co-editors.

Guidelines for Management of Patients with Particular Foreign Bodies on MRI

a) Orbital Foreign Bodies

Metal injury to eye:

- if patient went to doctor and exam negative, or object fully removed, no screen required. Otherwise screen with at least one view of the orbits (unless more recent plain film/CT already available).
- for non-patients, it may be appropriate to obtain informed consent for radiographic screening

b) Cardiac Pacemakers and Implantable Cardioverter Defibrillators

- generally strictly contra-indicated for MRI examination (none are labelled as MR safe or MR conditional).

Some can be scanned safely, but only with special precautions and where the risk is deemed acceptable after discussion amongst the MRI Radiologist and other clinicians, and the patient.

Such an examination would require:

- Clinical risk-benefit assessment
- Documented pacemaker type and model number, known to be suitable for supervised examination
- MRI-compatible ECG monitoring and (at least) pulse oximetry
- Cardiac electrophysiological expertise in MRI suite throughout scan, with ability to promptly re-program pacemaker device if necessary
- Equipment and trained staff for full CPR and defibrillation expert check of pacemaker function before patient leaves the MRI suite after the examination, with further follow-up at 1 – 6 weeks.
- Specific informed consent (including risk of death)

c) Intracranial Aneurysm Clips

- confirm present
- signed, written documentation of type (mfr, model no, lot no, serial no.) +/- testing
- in the USA, clips implanted > 1995 and labelled safe on basis of model identification are accepted for scanning at 1.5 T. Clips implanted prior to

1995 in the USA, need documented pre-testing or an uncomplicated previous MRI (estimate ferromagnetism). It is unclear whether the 1995 cut-off date can be rigorously applied in Sri Lanka. Clips documented in writing to be made of titanium accepted as MR conditional at 1.5 T

- If clip cannot be adequately characterised, proceed only on risk-benefit basis, after discussion between patient, neurosurgeon, and MRI unit director, with informed consent specifically including risk of death. The MRI radiologist must authorise examination of the patient in writing.
- Specific testing required at 3T because of potential displacement by Lenz effect

d) Stapes Implants

- Document the manufacturer/model/lot no.
- Refer to product and independent literature ; if prosthesis cannot be adequately characterised, perform a thin-section CT to exclude metal - if positive, exclude patient; if negative, accept patient.

e) Programmable Hydrocephalus Shunts (Codman-Medos And Sophy)

- these may be de-programmed by exposure to the field, and will require re-programming by appropriately trained personnel after the examination

f) Large Metal Implants (non-ferromagnetic joint prostheses, etc).


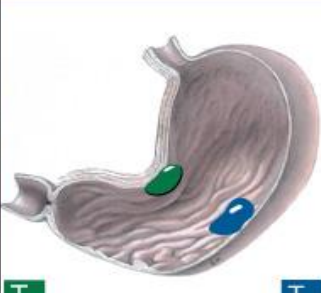


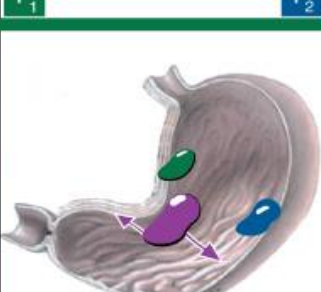


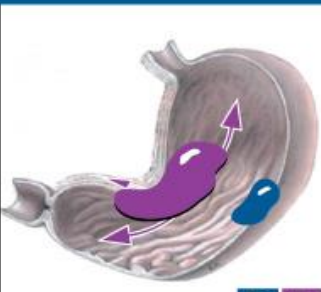
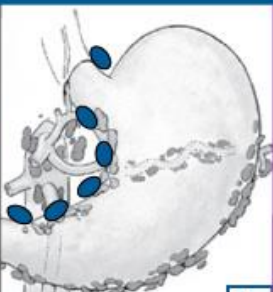


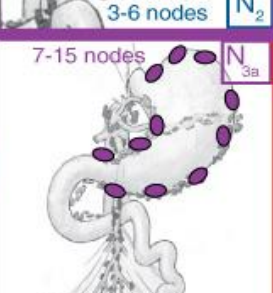


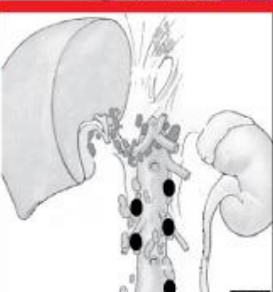



May be MR safe but undergo significant heating. At high field, Lenz law effects may result in repulsion of non-ferromagnetic conductors by the static field, as the implant is introduced into the bore. This is not necessarily a contra-indication to scanning. The effect may be reduced by reducing the speed of introduction of the patient and implant into the magnet bore.

*Reproduced from current Australian Guidelines www.ranzcr.edu.au

\$ Editors note

TNM staging of stomach cancer

Adapted from LWW Oncology and RAS 6076

DEFINITION OF TNM			T _{IS}	N ₀	STAGE GROUPINGS
I	T1 Tumor invades lamina propria, muscularis mucosae, or submucosa (T1a) Tumor invades lamina propria or muscularis mucosae (T1b) Tumor invades submucosa				Stage IA T1 N0 M0 Stage IB T1 N1 M0* T2 N0 M0
	N0 No regional lymph node metastasis* *Note: A designation of pN0 should be used if all examined lymph nodes are negative, regardless of the total number removed and examined.				
II	T2 Tumor invades muscularis propria*				Stage IIA T1 N2 M0* T2 N1 M0 T3 N0 M0 Stage IIB T1 N3 M0* T2 N2 M0 T3 N1 M0 T4a N0 M0
	N1 Metastasis in 1-2 regional lymph nodes				
III	T3 Tumor penetrates subserosal connective tissue without invasion of visceral peritoneum or adjacent structures**,***				Stage IIIA T2 N3 M0* T3 N2 M0 T4a N1 M0 Stage IIIB T3 N3 M0* T4a N2 M0 T4b N0 N1 M0
	N2 3-6 Regional lymph nodes				
IV	T4 Tumor invades serosa (visceral peritoneum) or adjacent structures** *** (T4a) Tumor invades serosa (visceral peritoneum) (T4b) Tumor invades adjacent structures				Stage IIIC T4a N3 M0 T4b N3 M0 T4b N2 M0
	N3 Metastasis in seven or more regional lymph nodes (N3a) Metastasis in 7-15 regional lymph nodes (N3b) Metastasis in 16 or more regional lymph nodes				
V	M0 No distant metastasis				Stage IV Tany Nany M1
	M1 Distant metastasis				

*Note: A tumor may penetrate the muscularis propria with extension into the gastrocolic or gastrohepatic ligaments, or into the greater or lesser omentum, without perforation of the visceral peritoneum covering these structures. In this case, the tumor is classified T3. If there is perforation of the visceral peritoneum covering the gastric ligaments or the omentum, the tumor should be classified T4.

**The adjacent structures of the stomach include the spleen, transverse colon, liver, diaphragm, pancreas, abdominal wall, adrenal gland, kidney, small intestine, and retroperitoneum.

***Intramural extension to the duodenum or esophagus is classified by the depth of the greatest invasion in any of these sites, including the stomach.

* not illustrated

8

Circumflex retroesophageal right aortic arch simulating SVC thrombosis – A rare aortic arch anomaly

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History:

45 years old male patient with chronic renal failure on hemodialysis presented with gradual onset engorgement of neck vein. A clinical diagnosis of SVC thrombosis was made as a complication of dialysis via a central venous line in superior vena cava (SVC). Patient was short of breath at presentation.

A CT angiogram of the neck and chest was performed for diagnosis.

Patient became severely breathless during the study.

Findings:

A retroesophageal aortic arch is seen crossing the midline behind the oesophagus to descend on left side as a normal left aortic arch (Fig.1a and Fig 1b). The SVC is stretched out over the aortic arch (Fig.2) causing obstruction and engorgement of proximal veins and collateral veins (Fig.3). Most distal part of the SVC is normal. No SVC thrombosis is demonstrated. Prominent azygos and hemiazygos veins are seen due to SVC obstruction.

First branch of the arch is left common carotid artery. It crosses the midline anterior to the trachea. Second branch is right common carotid artery. Third branch is right subclavian artery.

The last branch is left subclavian artery which arises from the anterior aspect of distal arch (Fig 4) and courses across the superior mediastinum to the left.

Trachea and oesophagus are partially compressed by the aortic arch (Fig. 2 & 4).



Fig.1a .
Retroesophageal aortic arch crossing the midline behind the oesophagus.

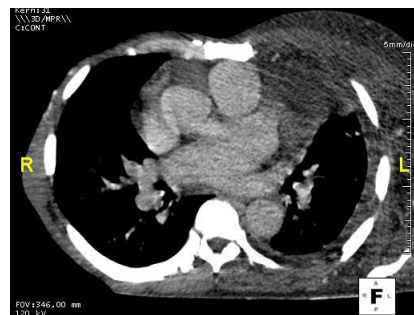


Fig.1b.
Thoracic aorta on L/side of the spine.



Fig 2. SVC stretched over the RAA (arrow)

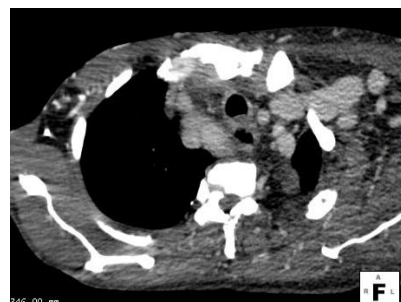


Fig 3.
Engorgement of venous channels proximal to SVC with opening of intra and extra thoracic collaterals



Fig. 4. Last branch of RAA , anomalous left subclavian artery crossing the mid line anterior to thoracic trachea.

Discussion

Development of aortic arches occur during 4th and 5th weeks of development together with formation of six pharyngeal arches. Each arch receives its own aortic arch which arises from the most distal part of the truncus arteriosus called aortic sac. Six arches formed thus, which are paired, are embedded in the mesenchyma of pharyngeal arches and terminate in right and left dorsal aortae. The later remain paired in the region of pharyngeal arches while fusing to form a larger descending aorta caudally. During the complex process of morphogenesis of the arterial system 1st and 2nd arches are nearly obliterated except for their remnants as maxillary and stapedial arteries respectively. 3rd and 4th arches persist on both sides and form parts of carotid (common carotid, internal carotid and external carotid) and subclavian arteries respectively.

5th arch is never formed or regresses soon after formation. 6th arch forms the pulmonary arteries and ductus arteriosus¹. It is the regression of right dorsal aorta between the right subclavian artery (formed by right 4th aortic arch) and descending aorta which leaves a left aortic arch. It is the aortic arch morphology seen in 70% of population².

Right aortic arch (RAA) occurs when the left 4th arch and left dorsal aorta are completely obliterated with persistence of right dorsal aorta¹. It is an uncommon anatomical variant of the aortic arch occurring in 0.05% of the population³. It is further divided into three main subclasses as RAA with mirror image branching, RAA with aberrant left subclavian artery (RAA ALSA) and RAA with isolation of left subclavian artery (LSA).

RAA with mirror image branching is almost always associated with cyanotic type congenital heart disease⁴.

RAA ALSA is the most common variant in occurrence³. In this anomaly the first branch arising from aortic arch is left common carotid artery followed by right common carotid, right subclavian and left subclavian arteries in that order of arising. The RAA passes between the SVC and right side of the trachea and oesophagus crossing over the right main bronchus to continue as the descending thoracic aorta. In the most common form, the right aortic arch passes behind the oesophagus to run abruptly downwards descending usually on the right side or in the midline³.

Infrequently as in our case the right aortic arch crosses the midline behind the oesophagus to descend on left side of the spine forming a circumflex retrooesophageal right aortic arch⁵. This variation of RAA presents different cohort of radiologic features. The descending thoracic aorta located to the left of the midline might give the misleading impression of a normal left aortic arch.

The prominent mediastinal border is formed by the upper part of the descending thoracic aorta bulging into the left lung. This may simulate a mediastinal mass⁵.

Generally this type is not associated with congenital heart disease and is found incidentally in adults during imaging. Reported few symptomatic cases are due hypertension with difference in blood pressure in both arms due to obstruction of the thoracic portion of ALSA mimicking aortic dissection⁵ and compressive symptoms especially of the trachea due to the "vascular ring"^{6,7}. Neonatal presentation with aortic interruption due to hypoplasia of the retroesophageal segment has been reported⁸.

There are no documented cases of RAA ALSA with compression of SVC as ours presenting with clinical features of SVC obstruction.

Take home point

Although circumflex retroesophageal RAA is an uncommon form of a rare entity, can present with common radiological and clinical features mimicking serious disease conditions.

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