



imaging the world



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INSTITUTE OF MEDICAL
SCIENCES



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*Editorial Greetings from the Department of Radiology,
With the blessings of Paramapujya, , Jagadguru, Sri Sri Sri Dr
Balagangadharanatha Mahaswamiji & His holiness jagadguru Sri
Sri Sri Nirmalanandanatha Mahaswamiji and under the able
guidance of our beloved Principal Dr MG Shivaramu , we shall
take great pleasure to introduce “IMAGING THE WORLD” , the
quarterly newsletter from our department.*

*At the outset, we wish express our sincere thanks to our
Principal Dr MG Shivaramu for bringing forth the novel concept
of newsletter in our institution.*

*IMAGING THE WORLD , is presented by the Department of
Radiology , the branch that has an amazing ability to visualize the
body without a scalpel!! . Radiology is now the key diagnostic tool
for many diseases and has important role in monitoring and
predicting the outcome. Radiologist have become clinical
specialists, who have been obliged to also become experts in image
capture technology.*

*Our Department is equipped with dynamic faculty members who
are actively involved in both diagnostic workup and academic
activities. In this edition we present to you few interesting cases
that we came across , ongoing research projects, upcoming events
which will enlighten our dear fellow colleagues and postgraduates
in the all the department in their academic venture. The newsletter
will be published on a quarterly basis.*

*We are open for your valuable comments and suggestions. You
may contact us at aimsradiology@gmail.com.*

Dr. Prashantha Ishwar

Tuberous sclerosis diagnosed by incidental computed tomography

Introduction:

Tuberous sclerosis or tuberous sclerosis complex or Bourneville disease is named for the firm whitish tuber like nodules arising from the cerebral convolutions. The most frequently involved organs are brain, kidneys, lungs, heart, skin and skeleton. It is a neurocutaneous disorder or phakomatosis which includes multiple benign tumours of the embryonic ectoderm.

Clinical history:

A 2 year old male baby presented with seizure disorder since birth and delayed developmental milestones with no history of familial genetic disorders was referred to radiology department.

USG:

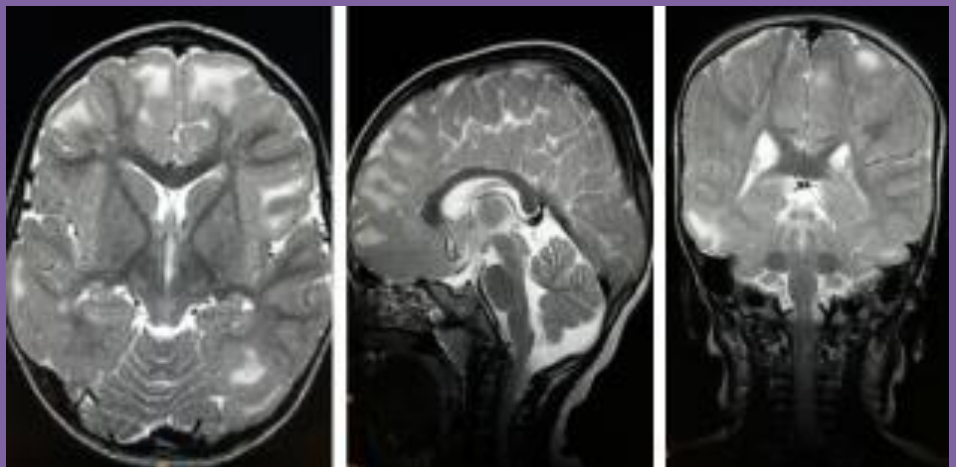
On Ultrasound there is presence of Cardiac Rhabdomyoma arising from proximal part of interventricular septum, which is confirmed later by echocardiography.

MRI:

MRI brain study reveals multiple well defined T1 hypointense, T2 hyperintense lesions involving subcortical white matter of bilateral cerebral hemispheres. Most of these lesions showing central area of suppression on FLAIR sequence which suggests cystic degeneration with surrounding FLAIR hyperintensities around these lesions, all this features suggests white matter degenerative changes with most of them showing cystic changes. Multiple T1 intermediate T2 hypointense and FLAIR hyperintense lesions arising from the lateral wall of bilateral lateral ventricles which suggests subependymal nodules.

Discussion:

The classical clinical triad of TSC symptoms are mental retardation, seizures, and cutaneous angiofibroma (Formerly called adenoma sebaceum), reported by Vogt in. Mental retardation and seizures are both neurologic manifestations of TSC. The overall incidence of mental retardation is 38 percent to 80 percent in TSC. while epilepsy is one of the most prevalent manifestations of TSC, occurring in more than 80 percent to 90 percent of patients with TSC. These neurological manifestations are highly related to cortical tubers, which are detected in 80 percent of patients. In this case, mental retardation and seizures were detected, also cortical and subcortical tubers were found on brain MRI scans. The skin lesions of TSC, such as facial angiofibroma and hypomelanotic macules, are detected in more than 90 percent of patients with TSC but only hypomelanotic macules observed in this case.



T2 weighted plain MRI axial, sagittal and coronal image of brain showing white matter degeneration in the form of hyperintense signal in the cortical and subcortical white matter



T1 weighted and FLAIR axial image of brain showing subependymal nodules arising from the lateral wall of the ventricles associated with suppression of white matter degeneration suggestive of cystic degeneration

Conclusion: Tuberous sclerosis is an important genetic disorder which affects the patient and the family in various ways. Now, due to an understanding of its pathogenesis, multiple drug therapies are available for certain manifestations of the disease. But the patient, along with symptomatic control of seizures, should also be offered special schooling, and occupational therapy.

INTERESTING CASE FROM OUR CT CONSOLE ROOM

RETROPERITONEAL LYMPHANGIECTASIA

Clinical History :

A 19 year old male patient presented with upper abdominal pain with h/o one episode of vomiting.

On local examination :Abdomen was soft with diffuse vague tenderness all over the abdomen. No e/o guarding /rigidity.

Plain radiograph of the abdomen:

unremarkable.

Usg abdomen: Retroperitoneal hypoechoic tissue with internal cystic spaces

Cect abdomen:

Ill defined fluid attenuation tissue occupying the retroperitoneum in the pre and the paravertebral area encasing the abdominal aorta and its branches, inferior venacava and bilateral renal vessel and is extending into the pelvis predominantly along the left sided iliac vessels encasing them and also extending into the left inguinal region and the visualized anterior aspect of the thigh encasing the vascular structures representing Retroperitoneal Lymphangiectasia .

Discussion:

Lymphangiectasia is a pathologic dilation of lymph vessels representing superficial lymphatic dilatation caused by a wide range of scarring processes. Lymphangiectasia occurs as a consequence of lymphatic damage by an external cause, leading to obstruction of local lymphatic drainage. Lymphangiectases are also termed acquired lymphangiomas. The pathogenesis of lymphangiectasia is not known; however, the vesicles associated with lymphangiectasia are suggested to represent saccular dilations of local superficial lymphatics. These vesicles develop secondary to increased intralymphatic pressure as a result of buildup of lymph in the superficial vessels caused by damage to previously normal deep lymphatics.



Coronal CT image showing ill defined fluid attenuation tissue extending into the pelvis predominantly along the left sided iliac vessels



Axial CT image showing ill defined fluid attenuation tissue occupying the retroperitoneum in the pre and the paravertebral area encasing the abdominal aorta associated with absence of neck, body and tail of the pancreas.

Conclusion: Plain radiographs, barium meal, ultrasound, computer tomographic (CT) scanning, and magnetic resonance imaging (MRI) have proven useful in determining the number and extent of lesions. Accurate anatomic localization plays an important role in the management of lymphangioma, because the diagnosis is ultimately made postoperatively (after the histopathologic examination of resected tissue). Three-dimensional ultrasonography may reveal cystic masses with thin septations, consistent with lymphangioma. MRI is probably the diagnostic modality of choice for lymphangiomas, because it accurately predicts subsequent intraoperative findings, and it helps to demonstrate lymphatic architecture.

“Father of the MRI ”- Raymond Damadian



- ✚ **Raymond Vahan Damadian** is an Armenian-American physician, medical practitioner, and inventor of the first MR (Magnetic Resonance) Scanning Machine
- ✚ Damadian discovered that tumors and normal tissue can be distinguished in vivo by nuclear magnetic resonance (NMR) because of their prolonged relaxation times, both T_1 or T_2 .
- ✚ Damadian was the first to perform a full body scan of a human being in 1977 to diagnose cancer.
- ✚ Damadian invented an apparatus and method to use NMR safely and accurately to scan the human body, a method now well known as magnetic resonance imaging (MRI)

Publications:

- ✚ **TUBEROUS SCLEROSIS DIAGNOSED BY INCIDENTAL COMPUTED TOMOGRAPHY SCAN.** Surabhi Chakraborty, Prashantha Ishwar. Journal of Research in Radiodiagnosis, Teleradiology and Imaging 2016; Vol. 2, Issue 1, Jan-June 2016; Page: 26-27.
- ✚ **CRANIAL ULTRASONOGRAPHY AND DOPPLER IN PRETERM AND TERM NEONATES.** Satish Prasad B.S, Sreenivasa Raju N, Surabhi Chakraborty. IOSR Journal of Dental and Medical Sciences (IOSR-JDMS) e-ISSN: 2279-0853, p-ISSN: 2279-0861. Volume 13, Issue 9 Ver. VII (Sep. 2014), PP 27-32.

DEPARTMENT ACTIVITIES



CME on Breast Imaging



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