1. **Guest Editorial** – Dr Ajai Kumar

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**GUEST EDITORIAL**

The Newsletter of the Interventional radiology department showcases “Cutting Edge” work done at HCG.

Progress in Medicine often follows advances in technology, but standardisation of techniques, auditing of results and mentorship during training for new technology, is essential to ensure benefits with safety for patients.

I am happy that the Department of Interventional Radiology under the dynamic leadership of Dr Indusekhar, takes the lead in all these aspects. They will also be organizing a live workshop, with hands on simulator training, to share their expertise with other specialists and trainees. I wish them all success in these and subsequent endeavours.

**Dr. B.S. Ajai Kumar,**
Chairman, HCG

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**ABOUT THE NEWSLETTER**

The idea of the newsletter for Interventional Radiology emerges from the need to share the changing trends in practice of interventional radiology. It also presents a perspective for young aspirants who wish to pursue their interest in Interventional Radiology.

It seeks to share current best practices such as Multi-Disciplinary Patient Management, interesting cases, points to ponder on and includes a Journal Round up of interesting Interventional Radiology reports.

It is an ongoing effort of the Interventional Radiology Department of HCG. Feedback on this Newsletter will be welcome (isubbana56@yahoo.co.in), and we will seek to continuously improve and update our efforts to be relevant.

The newsletter will be widely circulated across the country and read by Oncologists, General surgeons, Radiologist and Interventional Radiologists.
**INTRODUCTION:**

Juvenile nasopharyngeal angiofibroma (JNA) is a rare benign but locally aggressive tumor. Occurs almost exclusively in males, usually in adolescence. Surgical resection (either open or increasingly endoscopic) is the treatment of choice, usually performed with pre-operative embolization to help with haemostasis. Irradiation may be an option if surgery is not possible or only incomplete resection achieved.

**CASE REPORT:**

18 y/o male patient came with history of recurrent epistaxis. Contrast enhanced CT scan (Done elsewhere) showed a large, hyper vascular lesion in the nasopharynx in right Para median location. Epicenter of the lesion seen in sphenopalatine foramen causing anterior bowing of posterior wall of maxillary sinus – suspected to be a Juvenile nasopharyngeal angiofibroma (Stage 1a).

Patient was referred to our institute for pre-operative embolization.

Under LA, the right common femoral artery was accessed by Seldinger technique by using 5 F sheath (Terumo, Europe N.V.). Using 4F Headhunter catheter (Terumo, Europe N.V.), the right external carotid artery was accessed using guide wire combination.

Right external carotid artery angiogram showed tumor blush in branches of internal maxillary artery. Selective catheterization of internal maxillary artery was done and embolized with 355 to 500 micrometer PVA particles (Merit Medical Systems, Inc.) followed by gelfoam slurry.

Post embolization angiogram showed no tumor blush with stagnation of flow in artery.

Procedure went uneventful and the patient tolerated the procedure well. The patient underwent complete surgical resection of the tumor with minimal blood loss (< 100 ml). The post surgical recovery was uneventful.

**Discussion:**

Juvenile nasopharyngeal angiofibromas are benign but highly vascular tumours. They may be locally aggressive.

Typically JNA presents with obstructive symptoms, epistaxis and chronic otomastoiditis due to obstruction to the eustachian tube.

The staging system proposed by Sessions et al is the most commonly used and divides tumours into three stages:

- **Stage I**
  - Ia: limited to nasal cavity/nasopharynx
  - Ib: extension into one or more paranasal sinuses

- **Stage II**
  - IIa: minimal extension through sphenopalatine foramen into pterygomaxillary fossa
  - IIb: fills pterygomaxillary fossa bowing the posterior wall of the maxillary antrum anteriorly or extending into the orbit via the inferior orbital fissure.
  - IIc: extends beyond pterygomaxillary fossa into infratemporal fossa

- **Stage III:** intracranial extension

Preoperative embolisation of JNA can be safely performed without neurological complications.

Angiography is helpful in delineating ICA supply and can help guide surgical planning.

Nil - minimal blood loss during surgery.

**REFERENCES:**


**FIGURES WITH LEGENDS:**

**Figure 1a and 1b:** Axial, coronal and sagittal CECT images showing hyper vascular lesion in the nasopharynx with epicenter in sphenopalatine foramen causing anterior bowing of posterior wall of maxillary sinus – suspected to be a Juvenile nasopharyngeal angiofibroma
Figure 2: Right external carotid artery angiogram showed tumor feeding from internal maxillary artery

Figure 3: Selective angiogram of right internal maxillary artery showing tumor blush

Figure 4: Post embolization angiogram showed no tumor blush with stagnation of flow in artery
How I Do It.

Percutaneous Feeding Gastrostomy

A 31 y/o male, k/c/o carcinoma tongue came with history of inability to take feeds orally.

Endoscopic gastrostomy was not feasible for the patient. Hence, percutaneous feeding gastrostomy was planned.

Under aseptic precautions stomach was inflated with air using a 4F catheter as a nasogastric access. External skin mark was made over the stomach for anchoring (Fig 1 & 2).

Under local anesthesia, under fluoroscopic guidance, over the marked skin three anchors were introduced separately into the stomach, anchored and fixed. (Fig 3 & 4)

Puncture needle introduced into the stomach and confirmed with contrast injection. Guide wire introduced and track was dilated upto 20F with peel away sheath. 20Fr feeding tube placed in to the pyloric part of the stomach, retention balloon dilated with saline and confirmed with contrast injection. (Fig 5 & 6). Feeding tube fixed to the skin. (Fig 7)

The patient tolerated the procedure well and feeding was started with 24 hrs. Anchors were removed within 1 week.

Figure 1: External skin mark over the stomach for anchoring. (Fluoroscopy)

Figure 2: External skin mark over the stomach for anchoring.

Figure 3: Over the marked skin three anchors were introduced separately into stomach, anchored and fixed. (Fluoroscopy)

Figure 4: Over the marked skin three anchors were introduced separately into stomach, anchored and fixed.

Figure 5: Puncture needle introduced into the stomach

Figure 6: Contrast injection to confirm position of puncture needle in stomach

Figure 7: Feeding tube fixed to the skin

Long term nasogastric tubes are unpleasant and interfere with communications, thus gastrostomy is felt to be appropriate.

Percutaneous feeding gastrostomy is reported to have a success rate comparable to that of endoscopic method, with lower morbidity to mortality rates. It can also be performed in patients for whom endoscopic method would be difficult/dangerous. Eg, Head & Neck Malignancies.
Radiofrequency Ablation Of Osteoid Osteoma

13yr old male patient presented with 6 month h/o severe pain in right foot incapacitating his normal activities and found to have osteoid osteoma of the talus. Now admitted for radiofrequency ablation of the lesion.

The procedure was done under IV General and local anesthesia. Under aseptic precautions the procedure was performed under CT guidance. The skin entry point was infiltrated with local anaesthesia.

11G Akermans needle was placed at the talus, and entered into the Nidus of osteoid osteoma. RF needle (RITA medical system) was introduced and the electrodes were deployed into the lesion.

Ablation of the lesion was performed at 90°C for 5 mins. No heat sink effect noted. There was no undue heating of the overlying skin.

Post ablation scan showed no fracture of bone or hematoma or any other complication.

The pain relief was there within 24 hrs. The patient resumed normal activities within 7 days and has remained asymptomatic for more than a year.

Surgery is less desired option in osteoid osteoma due to difficulty in lesion localisation, subsequent consequences of extensive dissection, need for prolonged recuperation, risk of incomplete removal & subsequent recurrence.

RFA has proved to safe, quick & minimally invasive method of management.

Figure 1: Osteoid osteoma of the Talus (arrow)

Figure 2: RFA needle in situ
**Did You Know?**

(Selective Venous Sampling - For Endocrine Diseases)

**Selective endocrine venous sampling** is a set of interventional techniques proposed for the specific diagnosis of some endocrine disorders such as:

- **inferior petrosal sinus sampling**
  - evaluates for ACTH-secreting pituitary adenoma as aetiology for endogenous Cushing syndrome

- **adrenal venous sampling**
  - used for identification of primary aldosteronism (Conn syndrome or bilateral idiopathic adrenal hyperplasia).

- **selective venous sampling for primary hyperparathyroidism**
  - preoperative localisation of functioning parathyroid adenoma which cannot be localised by imaging

- **arterial stimulation and selective venous sampling for pancreatic endocrine tumours**
  - used for preoperative localization of pancreatic endocrine tumors (gastrinoma, insulinoma, VIPoma, glucagonoma, somatostatinoma)

- **ovarian venous sampling**
  - used to establish the source of excessive androgen production in women when imaging studies are not useful

Inferior petrosal sinus sampling is an infrequently used method of confirming the presence of a hormonally active pituitary microadenoma, when imaging alone has been insufficient. This technique is able to confirm that excess hormone (e.g. ACTH) is being produced by the pituitary and may also help in lateralising the microadenoma.

**Technique:**

Although technique varies, a standard modern approach would consist of:

1. review prior imaging to try and identify inferior petrosal sinus anatomy.
2. bilateral common femoral vein punctures with guiding catheter/microcatheter set-up
3. Advancing the catheter to the inferior petrosal sinus on either sides.
4. each sinus is catheterized with the micro-catheter, a similar distance from the gland
5. baseline samples are obtained (one or two sets) simultaneously from both catheters and the periphery. Samples are obtained from the IPS, IJV, SVC and IVC to establish the gradient.
6. corticotrephin-releasing hormone (CRH) may be used in some cases.
7. sequential simultaneous samples (e.g. at 3, 5, 10 and 15 minutes) are then obtained.
8. submit samples for laboratory assays.

The technique is similar for adrenal venous sampling except that the selective catheter is placed in the IVC, renal and adrenal veins are selectively cannulated to obtain venous samples.
1. Safety and Efficacy of Transarterial Chemoembolization Combined with CT-Guided Radiofrequency Ablation for Hepatocellular Carcinoma Adjacent to the Hepatic Hilum within Milan Criteria

Yongjian Guo et al JVIR, 2016 July 27 (4):487-95

Conventional transarterial chemoembolization combined with CT–guided RF ablation was performed in 40 patients with HCC adjacent to the hepatic hilum within Milan criteria (group A). Major complications, complete tumor ablation rate, local tumor progression rate, and overall survival were compared with 107 patients with HCC nonadjacent to the hepatic hilum (group B) treated by conventional transarterial chemoembolization combined with CT–guided RF ablation during the same period. No significant difference was found in the complication rates between the two groups. (p value =1.0)

These patients often present with obstructive jaundice and the prognosis has been very poor. A biliary stenting is required before any other treatment. TACE remains the mainstay in managing these patients. Additional RFA may be helpful in selected cases.


Mouli S et al JVIR, 2016 Apr 27 (9) 1279–1287

Review of patients with unresectable malignant biliary obstruction who underwent PTC, intraductal RF ablation, and biliary stent placement (n = 12) or PTC and biliary stent placement only (control group; n = 14) was done. Postoperative complications, jaundice remission, and stent patency were assessed. No severe complications (eg, biliary bleeding, perforation) occurred. All procedures were successful. The 1-week jaundice remission and 3-month stent patency rates were similar in both groups, but the 6-month stent patency rate was higher in the experimental group (P < .05). Percutaneous transhepatic cholangiography and intraductal RF ablation combined with biliary stent placement for malignant biliary obstruction is safe and feasible and effectively prolongs stent patency time.

3. Percutaneous Transhepatic Cholangiography and Intraductal Radiofrequency Ablation Combined with Biliary Stent Placement for Malignant Biliary Obstruction


Review of patients with unresectable malignant biliary obstruction who underwent PTC, intraductal RF ablation, and biliary stent placement (n = 12) or PTC and biliary stent placement only (control group; n = 14) was done. Postoperative complications, jaundice remission, and stent patency were assessed. No severe complications (eg, biliary bleeding, perforation) occurred. All procedures were successful. The 1-week jaundice remission and 3-month stent patency rates were similar in both groups, but the 6-month stent patency rate was higher in the experimental group (P < .05). Percutaneous transhepatic cholangiography and intraductal RF ablation combined with biliary stent placement for malignant biliary obstruction is safe and feasible and effectively prolongs stent patency time.

Groups median OS varied significantly depending on Barcelona Clinic for Liver Cancer (BCLC) stage. Single-drug conventional transarterial chemoembolization demonstrated longer median OS compared with triple-drug therapy for BCLC A/B patients.

Single-agent chemoembolization with doxorubicin and ethiodized oil demonstrates acceptable efficacy as measured by TTP and OS. Results compare favorably with traditional triple-drug therapy.

**Editorial comments:** The decision to use single or multiple drug therapies would depend on the tolerance of the patient to these drugs. No major difference in survival benefits is noted among the two groups.
Academic Programmes & Clinical Activities at HCG

Seminars in interventional radiology: **Wednesday 9:30 to 10:30 am. Venue: Tower III, 1st floor.**

Journal club in interventional radiology: **Thursday 12:30 to 01:30 pm. Venue: Tower III, 1st floor.**

Department of Interventional Radiology.

Faculty:

- **Dr. Indusekhar Subbanna, MD** – Consultant Interventional Radiology.
- **Dr. Vidya Bhargavi R, MD** – Junior Consultant in Interventional Radiology.

Fellow:

- **Dr. Uma A Pankar, DNB** – Fellow in Interventional Radiology.
- **Dr. Pannag Desai K N, MD** - Fellow in Interventional Radiology.

HCG Newsletter Series:

Editorial Advisor: **Dr. Ravi Nayar** – Dean Academics, HCG

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Swasti Art Gallery, HCG K.R.Road

Proceeds of the sale of this painting will be used for assisting poor patients.

For more information contact: info@hcgfoundation.org

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**INTEGRATIVE RADIOLGY**

Live workshop & “Hands on Simulation”

Organized by

Dept. of Interventional Radiology, HCG Hospitals, K.R Road.

On

17th & 18th December 2016, Saturday & Sunday