Precision Diagnostics in Pediatric Pathology: A Skill-Building Workshop

Time	Session	Speaker
9:00-10:00	Slide viewing session	
10:00–10:25	Paediatric Renal Tumours: Scanned Cytology and Histology Slide Review	Prof. VK Iyer Prof. Nandita Kakkar
10:25–10:50	Clinicopathological Correlation in Pediatric Autopsy	Prof. Nandita Kakkar
10:50–11:15	Decoding Peripheral Neuroblastic Tumors: Morphology, IHC & Molecular	Prof. Uttara Chatterjee
11:15–11:30	**Tea Break**	
11:30–11:50	Pediatric Liver Tumors: Morphologic Spectrum & Diagnostic Pitfalls	Prof. Rajni Yadav
11:50–12:10	Non-neoplastic Pediatric Liver Lesions	Dr. Mukul
12:10–12:30	Updates in pediatric spindle cell sarcoma	Dr. Aanchal Kakkar
12:30-12:50	Molecular and Immunophenotypic Profiling of Pediatric Small Round-Cell Sarcomas	Dr. Lavleen singh
LUNCH BREAK		
2pm to 3:00pm	Interesting case Discussion	Dr. Sagir Akhtar Dr. Ishani Gupta Dr. Shivani Gandhi Dr. Sonali Dixit
Parallel Hands on Session(3:00pm to 4:30pm)		
Work Shop A **(3:00 PM – 3:45 PM)** **(3:45 PM – 4:30 PM)**	**Use of Immunohistochemistry & Histochemistry**: Techniques used in paediatric pathology including Hirschsprung's disease	Dr. Ruchi Rathore Dr. Rimlee Dutta
Work Shop B **(3:00 PM – 3:45 PM)** **(3:45 PM – 4:30 PM)**	Cell-Block Preparation: Technique and Applications	Dr. Aruna Nambirajan Dr. Lavleen Singh
Note: Participants will be divided into two groups. Each group will attend one workshop from **3:00 PM to 3:45 PM** and then switch to the other workshop from **3:45 PM to 4:30 PM**, ensuring that all participants attend both **Workshop A** and **Workshop B**.		

2 . Speakers & Resource Persons

Prof. V.K. Iyer
Prof. Nandita Kakkar
Prof. Uttara Chatterjee
Prof. Rajni Yadav
Dr.Mukul Vij
Dr Aanchal Kakkar
Dr. Aruna Nambirajan
Dr. Ruchi Rathore
Dr.Rimlee Dutta
Dr.Sonal Dixit
Dr. Lavleen Singh
Dr Poonam Sharma
Dr. Sagir Akhtar
Dr. Ishani Gupta
Dr. Shivani Gandhi

3 . Hands-On Component (Mandatory)

Hands-On Component

The workshop offers a comprehensive, skill-oriented practical experience through three integrated hands-on modules designed to strengthen diagnostic acumen in pediatric pathology. These include a structured slide viewing session and two parallel specialty workshops.

1. Slide Viewing Session

Timing: 9:00 AM – 10:00 AM

Participants will engage in a guided microscopy session featuring curated pediatric pathology slides across organ systems and tumor types. This session includes:

- **Microscope stations** with glass slide sets representing pediatric renal tumors, liver lesions, neuroblastic tumors, germ cell tumors, and soft tissue sarcomas.
- Case-based slide review under supervision, with real-time feedback from expert faculty.

This session is aimed at enhancing participants' diagnostic confidence and pattern recognition in routine pediatric surgical pathology.

2. Workshop A: Immunohistochemistry & Histochemistry in Pediatric Pathology

Facilitators: Dr. Ruchi Rathore, Dr. Rimlee Dutta
Timing: 3:00 PM – 4:30 PM

This fully interactive hands-on module is designed to give participants practical experience in the application and interpretation of IHC and histochemical techniques in pediatric pathology.

Hands-On Activities Will Include:

- **Step-by-step execution of IHC staining protocols** on pre-prepared tissue sections using pediatric tumor markers (e.g., WT1, desmin, synaptophysin, PHOX2B). Participants will handle actual slides, reagents, and staining trays under supervision.
- **Performing histochemical stains** such as AChE (for Hirschsprung's disease) on sample tissues. Each participant will follow the protocol, perform the stain, and interpret the stained sections under the microscope.
- **Interpretation stations** with stained slides (microscopic and digital) allowing participants to correlate stain results with histological patterns in pediatric liver, renal, and gastrointestinal pathology.
- **Troubleshooting IHC and histochemistry artifacts** by reviewing real-world error slides and learning correction strategies.

3. Workshop B: Cell-Block Preparation – Technique and Applications

Facilitators: Dr. Aruna Nambirajan, Dr. Lavleen Singh
Timing: 3:00 PM – 4:30 PM

This session trains participants in the preparation and extended use of cell-blocks derived from pediatric FNAC, effusions, and CSF samples. It includes:

- **Live demonstration** of plasma-thrombin and agar-based techniques for cell-block creation.
- Expanded utility of cell-blocks beyond IHC:
    - Molecular assays (RT-PCR, FISH, NGS)
    - Special stains for infectious and metabolic conditions

4 . Technical & Logistical Requirements

Logistic and Technical Requirements

1. Slide Viewing Session

- **Binocular Microscopes:** 25 (one per participant or per pair)
- **Curated Glass Slide Sets:**
    - Pediatric renal tumors
    - Neuroblastic tumors
    - Liver lesions (neoplastic and non-neoplastic)
    - Germ cell tumors
    - Pediatric spindle and round cell sarcomas
    - Fetal autopsy sections
- **Faculty Support:** 4–5 faculty members for real-time case guidance

2. Workshop A: Immunohistochemistry & Histochemistry

- **Staining Setup:**
  - Staining trays, Coplin jars, slide racks
  - Equipment for antigen retrieval
  - IHC reagents and antibodies: WT1, Desmin, PHOX2B, Synaptophysin, Cytokeratins, INI1
  - Special stains: AChE, Oil red O
  - Mounting media, coverslips, DAB chromogen
- **Tissue Samples:** Pediatric tissue sections, rectal mucosal biopsy (pre-cut, formalin-fixed, paraffin-embedded slides)
- **Personal Protective Equipment (PPE):**
  - Disposable gloves, aprons, lab coats
  - Stain-proof table covers
- **Microscopes:** 10 (for post-stain evaluation)
- **Waste Disposal Supplies:** Biohazard containers, sink access

3. Workshop B: Cell-Block Preparation and Applications

- **Demonstration Setup:**
  - Centrifuge
  - Plasma-thrombin and agar materials
  - Formalin containers, cassettes, embedding molds
- **Hands-On Materials:**
  - FNAC/effusion/CSF samples
  - Smear preparation tools: pipettes, cytobrushes, cell funnels
- **Pre-prepared Cell Blocks:** For microscopic evaluation and IHC/molecular discussion
- **Microscopes:** 5–10 for slide review
- **Reagents for Fixation and Staining:** 10% NBF, alcohol series, eosin/hematoxylin, etc.
- **Faculty/Technician Support:** For each station to guide cell block processing

4. General Requirements

- **AV Setup:**
  - 2 projectors and screens
  - Lapel and handheld microphones
  - Laser pointer
- **Wi-Fi & IT Support:**
  - 1 Gbps LAN for digital slide streaming
  - Local server access if using institutional WSI
- **Stationery and Consumables:**
  - Slide boxes, tissue papers, immersion oil, lens tissue

    - Notepads, pens, program printouts
- **Hospital/Institutional Coordination:**
    - Liaison with histopathology lab for slide preparation
    - Coordination with AV/technical team for digital logistics
    - Access to demo lab with water/sink/disposal facility

Local faculty will liaise with the AIIMS Jammu audio-visual and histopathology labs for smooth execution.

5 . Target Audience & Learning Objectives

Audience: MD/DNB pathology postgraduates, senior residents, early-career faculty, and practising histopathologists seeking competence in paediatric specimens.

At the end of the workshop participants will be able to:

Learning Objectives Fulfilled by the Hands-On Workshop

By the end of the workshop, participants will be able to:

1. **Demonstrate proficiency in interpreting pediatric histopathology anf cytopathology slides**, including renal, hepatic, gastrointestinal, soft-tissue, and cytologic lesions, through direct microscopy and whole-slide imaging platforms.
2. **Apply immunohistochemistry (IHC), and histochemical stains** in the diagnostic evaluation of pediatric tumors, understanding marker selection, staining interpretation, and potential pitfalls.
3. **Correlate histomorphologic features with molecular and immunophenotypic profiles** in pediatric spindle cell and round cell sarcomas, enabling accurate subtyping and targeted diagnostic workup.
4. **Utilize digital pathology tools**, including slide annotation and remote diagnostic workflows, for collaborative and telepathology applications in pediatric pathology.
5. **Understand and apply cytologic principles in pediatric mass lesions and effusions**, including the preparation and utility of cell-blocks for ancillary testing.
6. **Engage in case-based discussions to reinforce diagnostic reasoning**, improve pattern recognition, and integrate clinicopathologic correlation in challenging pediatric cases.