Pediatric tumors are usually clinically aggressive and rapidly progressive in nature; where one needs to make a rapid, accurate, and specific diagnosis to prevent disease progression.

Fine-needle aspiration cytology (FNAC) is an ideal diagnostic tool in this regard and is being increasingly used for abdominal and thoracic malignancies in children.

**Material & Methods**

The diagnostic utility of pre-operative fine needle aspiration cytology (FNAC) on paediatric abdominal masses was evaluated with and without radiological assistance and limited use of immunocytochemistry (ICC).

Papanicolaou and May-Grunwald- Giemsa stained smears of 276 aspirates from paediatric intra-abdominal masses were reviewed. Complications arising immediately after the procedure were documented.

## Result

### Aspiration Cytology of Paediatric Renal Tumors:

**Indications:** Large Stage III inoperable renal masses requiring chemotherapy in which mass is abutting on the anterior abdominal wall making FNAC without anesthesia a safe procedure with no risk of bleeding. 5% of the procedures are unsatisfactory.

**Contraindications:** Operable tumors. Small tumors requiring ultrasound guided approach in which a core needle biopsy is preferable. Older children over 10 years with increased risk of renal cell carcinoma.

**Benefits:** Early identification of clear cell sarcoma and rhabdoid tumor which require different therapy. Stroma predominant tumors may not shrink with chemotherapy despite being responsive.

**Complications:** Bleeding in two cases was seen, both after ultrasound guided aspiration of smaller tumors. Since anaesthesia is required, core biopsy is better in this situation.

### Aspiration Cytology of Paediatric Liver Tumors:

**Diagnosis:** All cases of suspected hepatoblastoma before starting chemotherapy, after CECT examination. 5% of the procedures are unsatisfactory.

**Contraindications:** Hemangiommas and infantile hemangiendotheliomas after CECT diagnosis.

**Benefits:** Definite diagnosis of hepatoblastoma and differentiation from the rare undifferentiated embryonal sarcoma of the liver and rhabdoid tumor of the liver, which resembles its kidney counterpart on FNAC.

**Complications:** None observed.

### Aspiration Cytology of Non Renal and Non Hepatic Tumors:

**Indications:** Suspected neuroblastoma. 10% of aspirates are unsatisfactory.

**Contraindications:** Gastric and other teratomas which tend to bleed after aspiration.

**Benefits:** Diagnosis and application of molecular biological tests on neuroblastoma. Complications: Bleeding in a case of gastric teratoma required emergency surgery.

### Conclusion

Aspirations without guidance or anaesthesia are safe in abdominal tumors abutting on the anterior abdominal wall. FNAC is indicated in all palpable paediatric liver masses regardless of age and renal masses in patients less than 5 years of age.

Careful risk benefit analysis is needed in paediatric renal tumors between 5 and 10 years while it should be done with circumspection in patients above 10 years since chances of renal cell carcinoma are higher.

Small renal tumors requiring ultrasonographic guidance should preferably undergo core needle biopsies. Aspiration cytology adds little value to abdominal teratomas and should be avoided since risk of bleeding is higher. In all other paediatric intra-abdominal masses FNAC aids in diagnosis and management.