

# Initial experience of tract cauterization using 16G microwave ablation antenna after biopsy of intraabdominal lesions in children

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Percutaneous image-guided biopsies play an essential role in establishing the diagnosis, determining the prognosis and aiding the further management of paediatric patients with intraabdominal lesions. However, these are invasive procedures that are not without risk, with major bleeding being an uncommon but potentially life-threatening complication. Tumour seeding along the biopsy tract is another serious complication that can occur.

Tract cautery is routinely used to decrease the incidence of bleeding and tumour tract seeding in patients undergoing tumour ablation procedures with some studies demonstrating that electrical heating of needle biopsy tracks reduces bleeding from intraabdominal organs. There may be similar potential for percutaneous needle biopsy procedures.



**Objectives:** To assess the **technical feasibility** and **safety** of using a **16G microwave ablation (MWA) probe** for **post-biopsy tract cauterization** in children with **intraabdominal lesions**.



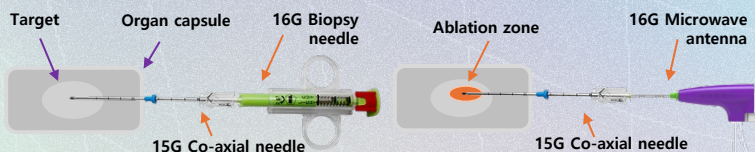
**Results:** 11 patients (2.4-19 years old; female 54.5%) with intraabdominal lesions (hepatoblastoma=7, hepatocellular carcinoma=3, hepatic angiosarcoma=1, splenic lymphoma=1) were included. All patients had one or more of the following bleeding risk factors: hypervascular mass, renal insufficiency, cirrhosis, or subcapsular tumour location. Platelet count and coagulation profile were within normal limits for all patients. Median number of cores obtained was 10 (range=8-12)

The **technical success rate of tract cauterisation** was **100% (14/14)**. **No adverse event** including **post-biopsy haemorrhage** or **skin burn** occurred. **No evidence of tumour seeding** occurred with a **median follow-up of 19 months** (range=12-40 months).



**Materials and Methods:** We retrospectively reviewed consecutive paediatric patients aged <19 years, from May 2019 to May 2023, who underwent biopsy of intraabdominal lesions and intended tract cauterisation with MWA. Only biopsies classified under procedures associated with high bleeding risk in the Society of Interventional Radiology guideline were included.

An **16G microwave antenna** was inserted through a **15G coaxial cannula immediately following 16G core needle biopsy**, to cauterize the biopsy track. Bleeding risk factors, tumour type, technical success, and adverse events were recorded.



Step 1: Percutaneous Biopsy

Step 2: Exchange Core Biopsy needle to Microwave antenna & begin tract ablation



Step 3: Retract Microwave antenna & Co-axial needle

Step 4: Retract Microwave antenna until insulated gap fully withdrawn into Co-axial needle, & stop tract ablation



**Conclusion:** Tract cauterization using 16G MWA antenna after biopsy of intraabdominal lesions was **technically feasible** and **safe** in the **paediatric population**. It appears to be **effective in preventing post-biopsy haemorrhage** and **biopsy tract tumor seeding**.