

Ablation Therapy for Liver Cancer and Liver Tumours

Source: By [Dr Victor Lee Tswen Wen](#), Senior Consultant, [Department of Hepato-pancreato-biliary and Transplant Surgery](#) at [Singapore General Hospital \(SGH\)](#), a member of the [SingHealth](#) group.



Patients with liver tumours can consider a treatment option called ablation therapy.

Ablation therapy can be used to treat many types of liver tumours. The two most common types are [liver cancer](#) (hepatocellular carcinoma), and colorectal liver metastases ([colon cancer](#) that has spread to the liver).

With ablation therapy, liver tumours can be destroyed through the use of minimally invasive treatment modalities. Typically, a needle probe is guided into a liver tumour by ultrasound or computed tomography (CT).

As a general rule, ablation therapy is less likely to cure the cancer compared to surgery. However, it can be the preferred option in the following patients:

- Patients with a few small tumours who are not good candidates for surgery due to poor health or poor liver function
- Patients who are awaiting liver transplant for liver cancer
- Patients who had multiple previous surgeries
- Patients with poorly located tumours, or who require a large volume of functioning liver to be removed together with the tumour
- Patients with several liver tumours, not all of which can be surgically removed
- Patients with tumours that has not responded to chemotherapy, or tumours that have recurred after previous surgery

What are the different types of ablation therapy for liver cancer?

1. **Microwave ablation**

This is a newer modality. Microwaves are used to heat and destroy cancer cells.

2. Radiofrequency ablation

High-frequency electrical currents are passed through an electrode, which creates heat that destroys cancer cells. The dead tumour cells are gradually replaced by scar tissue over time.

3. Percutaneous ethanol injection (PEI)

Concentrated alcohol is injected directly into the tumour to kill cancer cells.

Ablation is best suited for tumours no larger than 3cm in diameter. In this case, ablation outcomes are comparable to those of surgery.

For larger tumours (3cm to 6cm in diameter), microwave ablation and radiofrequency ablation can be considered, in combination with embolization of the liver tumour (to starve the tumour's blood supply).

Most patients who undergo ablation therapy will require 1 to 2 days stay in hospital, which is much shorter compared to surgery. The complications associated with ablation therapy are also less compared to surgery. There is more robust clinical data for radiofrequency ablation and microwave ablation, compared to percutaneous ethanol injection.

How is it done?

Ablation therapy is most often performed by a trained interventional radiologist, or sometimes by a trained surgeon.

Most commonly, the electrode is placed into the liver tumour through a small nick in the skin (a local anesthetic is used to numb the skin). Intravenous sedation and monitoring of heart rate and blood pressure is performed during the procedure.

For larger tumours, there may be a need to reposition the needle electrode into different parts of the liver tumour to ensure adequate ablation. Generally, each ablation takes 10 to 30 minutes. Additional time is needed with multiple ablations and multiple tumours.

Side effects of ablation therapy for liver cancer

Ablation therapy has fewer side effects compared to surgery. The possible side effects include:

- Abdominal pain
- Fever
- Bleeding
- Inflammation of the gallbladder
- Damage to the surrounding organs (diaphragm, bile ducts, bowel) which may require surgical correction, and
- Localized infection or abscess formation at the ablation zone.

Benefits of ablation therapy for liver cancer

Ablation therapy is effective treatment for selected liver cancers (preferably less than 3cm, and up to 6cm) and for selected patients with colorectal liver metastases.

Serious treatment-related complications are infrequent. The procedure usually involves minimal discomfort if performed percutaneously (through the skin) or laparoscopically (through minimally invasive surgery, also called [keyhole surgery](#)).

Ablation therapy is a relatively quick procedure and involves a short hospital stay. In a multicenter prospective study conducted over a 5-year period, the tumour recurrence rate was 7 per cent.

Article contributed by the [Dept of Hepato-pancreato-biliary and Transplant Surgery](#) at



Ref: S13

Term of Use / Disclaimer

All information provided within this web and mobile application is intended for general information and is provided on the understanding that no surgical and medical advice or recommendation is being rendered. Please do not disregard the professional advice of your physician.