



Cryoablation of Pelvic Fibromatosis

Fibromatosis is a difficult tumor to treat in many instances. If superficial and small, it can be surgically removed. However, if the lesion is large, infiltrative or in deep areas, surgery can be morbid and may still be inadequate.

In such instances, alternate methods such as certain forms of chemotherapy and ablation techniques such as radiofrequency ablation (RFA) and cryoablation have been successfully used (Fig. 1).

Cryoablation has been shown to be the better ablation technique compared to others. Cryoablation is a relatively new technique where freezing temperatures are used to kill tumor cells by creating iceballs within the tumors. Liquid nitrogen or argon is used depending on the system. With liquid nitrogen, the temperature at the centre of the ice-ball can reach up to minus 196 degrees Celsius with lethal temperatures of minus 20 to minus 40 degrees in the rest of the iceball (Fig. 2). More importantly, the iceball can be visualized on USG, CT or MRI as the case may be, allowing accurate monitoring of the ablation area (Fig. 3).

The machine is compact and sits in the CT scan room. The procedure is easily done on an out-patient basis in day-care, mostly under local anesthesia, some patients needing intravenous sedation if the tumors are inherently painful.

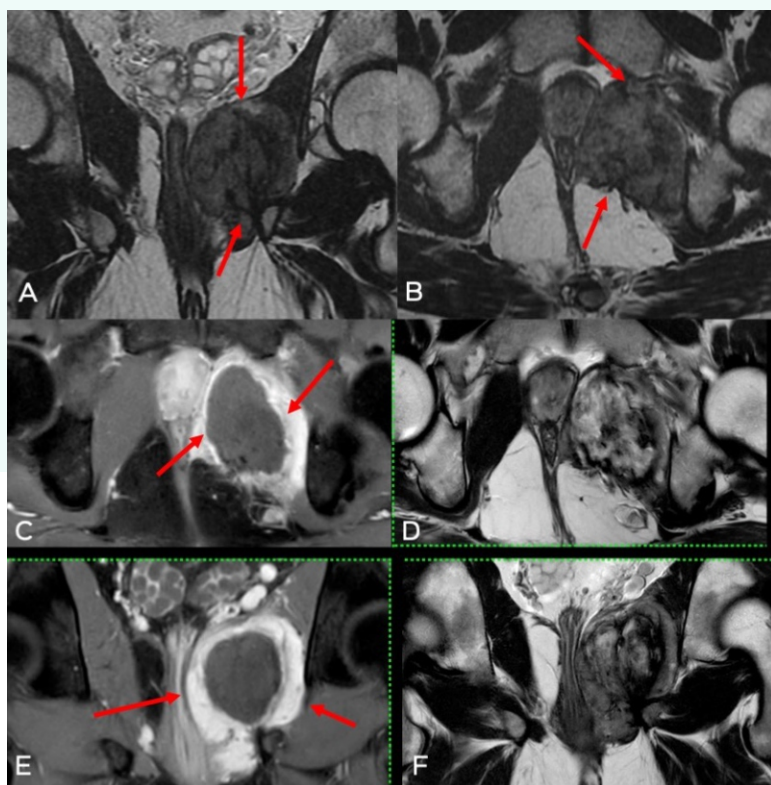
Indications

1. Bone tumors
2. Soft tissue tumors like fibromatosis (Fig. 1) for cure and palliation
3. Lung tumors – primary and metastases
4. Liver tumors – primary and metastases.
5. Renal tumors

Contraindications

1. Large tumor size (typically > 10 cm)
2. Abnormal coagulation profile

Fig. 1 (A-F): 33-years old patient with pelvic fibromatosis. Coronal (A) and axial (B) T2W MRI shows classic pelvic fibromatosis (arrows). Cryoablation was done. One week later, the contrast axial (C) and coronal (E) images show approximately 80% necrosis (arrows) with a residual rim of tumor as expected and planned. The axial (D) and coronal (F) T2W images show a change in morphology due to the ablation.





At a glance:

- ◆ Cryoablation is a new ablation technique that uses ice-balls to freeze and kill tumor cells
- ◆ Extra-abdominal desmoid fibromatosis is a difficult to treat tumor, especially when deep or large
- ◆ Cryoablation is a good technique for such tumors as in this case of pelvic fibromatosis

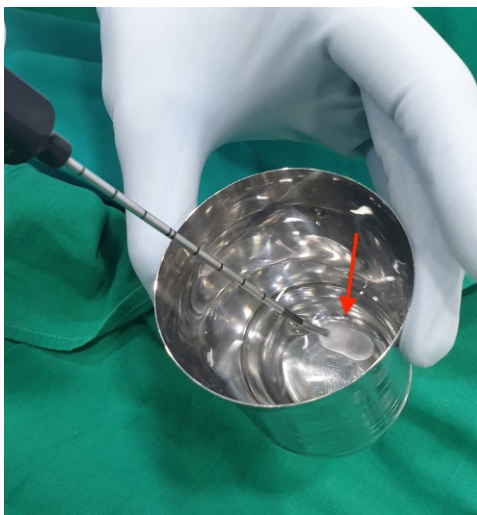


Fig. 2: Ex-vivo iceball formation



Fig. 3: In-vivo iceball during the procedure. Axial (A), coronal (B) and sagittal (C) images show the iceball (measurements) along the cryoprobe.

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