Ultrasound Guided High-Intensity Focused Ultrasound (HIFU) Treatment of Breast Fibroadenoma

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Rationale
Breast fibroadenoma (FA) is the most common benign lesion, affecting women in about 10% during their lifetime. As a consequence of breast imaging development, benign epithelial diseases represent a growing percentage of breast pathology diagnoses.

Patients
Inclusion criteria
- Women >18 years, with a palpable breast FA >10mm/diameter.
- Ultrasound examination
- Microbiopsy (CNB) with histology of FA
- Mammography (patients of 35y or older) with ACR score < 3
- Distance skin-focal point ≥ 11mm
- Distance rib cage-FA’s posterior edge ≥ 10 mm

Exclusion criteria
- Pregnant and lactating women
- Microcalcifications within the lesion at mammography
- Calcified FA
- Breast cancer history
- Breast implant (treated side)

To establish the feasibility, safety and efficacy of HIFU technique for breast FA under ultrasound guidance.

Methods and Results

Methods
- HIFU treatment as an outpatient procedure
- Under neuroleptanalgesia
- Mean duration of 1h12 (9h26 - 2h33)
- Post treatment follow-up:
- Physical examination at one week
- Ultrasound and Color Doppler examination from M1 to M6, M9, M12, M18, M24
- Volume assessment with ultrasonography

Results
51 FA treated with HIFU, mean volume 3,89 cm³ (0,34 - 19,7 cm³)
89% of the patients have a volume reduction >60%

Tolerance
No major adverse events observed

Conclusion
HIFU treatment is a non-invasive and effective treatment for breast fibroadenoma. The procedure is well tolerated by patients, with transitory mild to moderate side effects. Preliminary results are encouraging and show that HIFU could be an alternative treatment for benign breast tumors.

Principles
Ultrasound-guided High Intensity Focused Ultrasound (HIFU) is an alternative to the surgical treatment. HIFU penetrates through soft tissues and induces localized hyperthermia (around 80°C) responsible of irreversible cell damage, protein denaturation and coagulation necrosis, whereas overlying and surrounding tissues are spared.