Did You Know? Desmoid-type Fibromatosis of the Breast

Abstract

Aggressive fibromatosis comprises connective tissue tumors that represent 0.03% of all bodily neoplasms, occurring more frequently in the abdominal wall, mesentery and extremities. Aggressive fibromatosis of the breast (Figure 1), also referred to as desmoid tumor, or low-grade fibrosarcoma, constitutes a very infrequent type of lesion, accounting for only 0.2% of all breast tumors.

This type of tumor is a locally aggressive benign tumor of the breast; it originates from fibroblasts and myofibroblasts within the breast parenchyma and does not metastasize. The condition is locally aggressive and has a high rate of recurrence. Whilst the definite etiology of breast fibromatosis is unclear, it may present itself following surgical trauma or silicone implant.



Breast imaging examinations are not specific for fibromatosis; to distinguish mammary fibromatosis from malignant breast tumors through physical examination and imaging techniques can be difficult. Fibroblastic and fibrous proliferations such as fibromatosis are rare. Their inflammatory, reactive, or truly neoplastic nature is often difficult to determine histologically, and the cytological features of fine needle aspiration of these lesions may also be misleading. So, it is extremely important to do an imaging examination of a very good quality to distinguish this rare disease.

Complications

- Different forms of fibrosis
- Tumor recurrence
- Organs damage
- Internal bleeding
- Inhibition of breast function

Possible treatments

- Surgery is the primary treatment option
- Hormonal therapy
- Image-guided intensity modulated radiotherapy
- Administration of nonsteroidal anti-inflammatory medications
- Cytotoxic chemotherapy



In Olea Sphere®

The breastscape[®] application for breast MRI interpretation includes morphological analysis of conventional sequences (T2, dynamic T1, DWI). The subtracted images (from dynamic T1 sequence) are instantly calculated and displayed when the application is launched (Figure 2) as well as several parametric maps as SER (signal enhancement ratio), Peak, AUC (area under contrast curve), PEI (positive enhancement integral), Wash-in, Wash-out, TME (time to maximum enhancement) and curve washout.

The breastscape[®] "Lesion" tool allows to overlay subtracted images with the PEI map. 70% washout threshold is applied on the PEI map to highlight the enhancing tissues. With a single click on a suspected breast lesion, breastscape[®] automatically segments the lesion and computes the distances from the lesion to skin, chest and nipple. The breast lesion position is automatically reported on a standardized breast sector map (Figure 3). Although automatically computed, all findings could be manually adjusted.

Breastscape[®] aims at making interpretation and reporting easier. To do so the user is guided through the recommendations of the ACR and Bi-RADS[®]* reporting (Figure 4).

Addition

The advent of artificial intelligence opens the door for new possibilities in breast MRI interpretations, particularly in the segmentation and characterization of lesions. Texture analysis can extract data invisible to the naked eye and provide new MRI biomarkers.



Figure 3



References

- *BI-RADS and BI-RADS ATLAS are registered trademarks of the American College of Radiology (ACR)
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