

Accurate Documentation of Breast Biopsy Markers Can Reduce Potential for Medical Errors

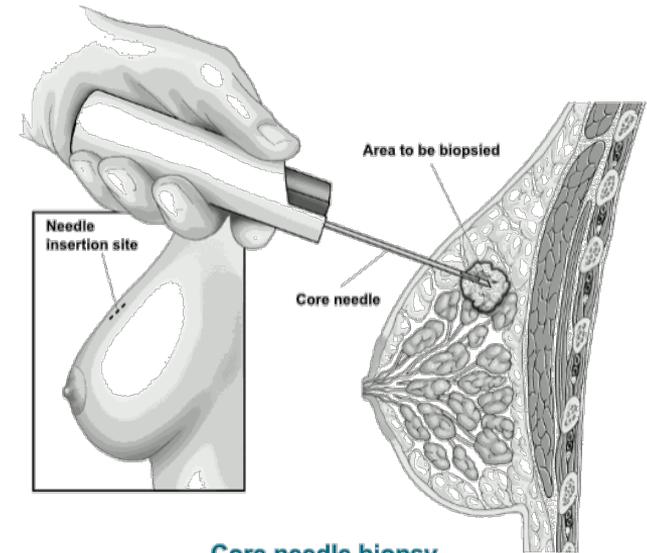
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- Radiologist-performed core needle biopsy (CNB) under imaging guidance has replaced surgical excision as the gold standard breast biopsy approach.
- Minimally invasive, better tolerated by patients, and just as likely to acquire sufficient amounts of breast tissue for biopsy
- In a meta-analysis, CNB under ultrasound or stereotactic guidance demonstrated a sensitivity of **87%** & specificity of **98%** and thus is highly reliable for the diagnosis of suspicious breast lesions.



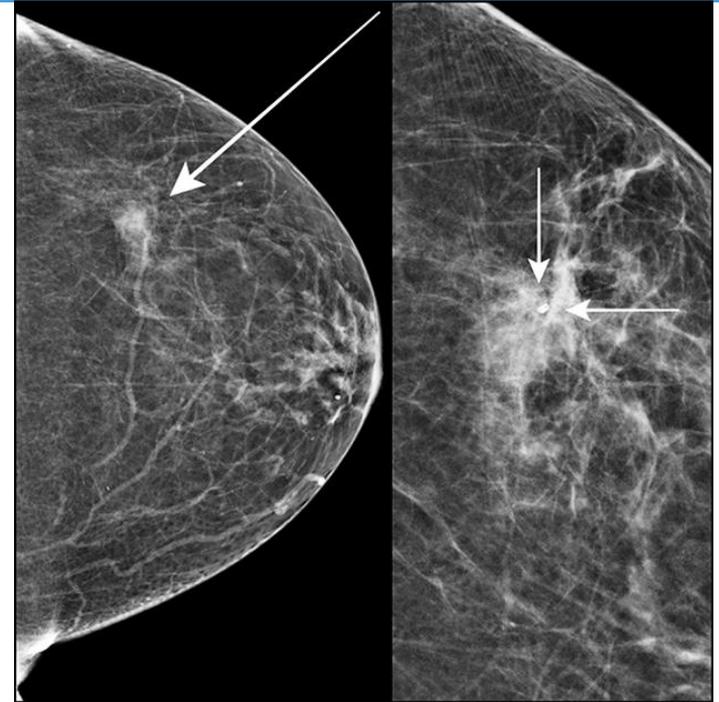
Core needle biopsy

Background (cont.)



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- At the time of a CNB, a biopsy marker is placed in the sampled region of the breast or lymph node to mark the site biopsied.
- There are a myriad of biopsy markers currently available on the market that come in various shapes, sizes and compositions.
- The type of marker used & the terminology employed to describe them can vary across providers & institutions.



In the figure above, a marker clip that was inserted after a biopsy can be seen (white arrows.)



- In September 2018, breast radiologists at our institution began employing a standardized template for CNBs that requires a description of the type of breast biopsy marker be included in the report. Faculty and trainees were educated on the newly implemented template feature.
- To assess impact of this intervention, 140 finalized breast biopsy procedure reports (July 2014 to July 2017) were reviewed as the pre-intervention cohort and 100 finalized procedure reports (July 2019) were reviewed as the post-intervention cohort.



- All 240 reports were retrospectively reviewed by four breast imaging radiologists.
- Each report was checked for documentation of the presence of a biopsy marker. If a biopsy marker was mentioned then the report was reviewed for biopsy marker descriptors, such as shape.
- Images of commonly used breast biopsy site markers were then compiled to illustrate appearance and provide a reference guide for future use.



- The predicted probability for marker placement being documented was 0.768 (SE=0.041) for the year 2014 cohort, 0.879 (SE=0.031) for the year 2017 cohort, and 0.969 (SE=0.016) for the year 2019 cohort (post-intervention)
- There was evidence that the probability of marker placement being documented was greater for the 2019 cohort, compared to the 2014 cohort (adjusted p-value=0.0005) and 2017 (adjusted p-value=0.047).
- The predicted probability of having a marker descriptor was 0.217 (SE=0.042) for the year 2014 cohort, 0.680 (SE=0.047) for the year 2017 cohort, and 0.940 (SE=0.024) for the year 2019 cohort.
- There was evidence that the probability of having a marker descriptor was greater for 2019, compared to 2014 (adjusted p-value <0.0001) and 2017 (adjusted p-value <0.0001).

Reference Card



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FRONT OF CARD				BACK OF CARD							
	RIBBON		OMEGA		VENUS		TOP HAT		BUCKLE		X
	HEART		SPRING		MINI CORK		INFINITY		CORK		Q
	S		COIL		HOURGLASS		STOPLIGHT		VISION		FLEX
	O		V								
	X		M		RING						
Bard® Markers						Hologic® Markers					
	OPEN COIL		BOWTIE		BARBELL		BEACON™		CASSI® STAR		
	BUTTERFLY		U-SHAPE		TRIBELL						
	BARREL		TRIPLE TWIST		ANCHOR						
Mammotome® Markers						Mermaid Medical® Markers					

Source: Shah AD, Mehta AK, Talati N, et al. Breast tissue markers: Why? What's out there? How do I choose? *Clinical Imaging*, Volume 55, May-June 2019, Pages 196-212.



- As the number of patients that undergo needle biopsy procedures continues to increase, there will be a subsequent increase in patients with multiple biopsy markers inserted from prior biopsy sites.
- It is imperative that radiologists clearly document the location and shape of each biopsy marker because inconsistent reporting can contribute to misinterpretation and possible removal of the wrong lesion.
- Employing a standardized template to properly document biopsy markers increases accurate and consistent documentation, improves communication between providers, and potentially reduces the risk of medical errors.
- Having access to a reference card with the different types of markers commercially available can help minimize errors in patient care.

References

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3. Shah, AD, Mehta, AK, Talati N, et al. Breast tissue markers: Why? What's out there? How do I choose? *Clinical Imaging*, Volume 52, November–December 2018, Pages 123-136
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