Comparison of Multiple Wire, Radioactive Seed, and Savi Scout® Radar Localizations for Management of Surgical Breast Disease

Marissa K Srour MD, Sungjin Kim PhD, Farin Amersi MD, Armando Giuliano MD, Alice Chung MD

Introduction

- Radioactive seed localization (RSL) and the Savi scout radar® (SSR) are newer alternatives to wire-guided localization (WL) for non-palpable breast lesions
- There is limited data on localization using SSR and RSL for excision of multiple lesions within the same breast

Objective

- To compare three different localization devices when multiple devices were used for pre-operative localization of non-palpable lesions in patients undergoing breast surgery

Methods

- 68 patients (pts) had a partial mastectomy (n= 54) or breast biopsy (n= 14) with pre-operative image guided localization (loc) using multiple wires or device placement for non-palpable lesions between July 2017 to July 2018
- Lesions were localized by WL, RSL, or SSR
- Delay in operating room start times and total perioperative times in both the hospital and ambulatory setting, loc time, explant of loc device, positive margins, volume of tissue excised, and 30-day complications were evaluated

Results

- 41 pts (60%) had WL
- 11 pts (16%) had RSL
- 16 pts (24%) had SSR loc
- 54 pts (79.4%) had loc of two lesions, 13 pts (19.1%) had loc of three lesions, and 1 pt (1.5%) had loc of four lesions, of which 23 pts (33.8%) had a lesion that was bracketed (36.6% WL vs. 18.2% RSL vs. 37.5% SSR, p=0.487)
- There was no difference in length of localization time among the groups (average 25.5 min, p=0.179)
- In 91.2% of cases, the first specimen contained all the clips and loc devices, which was similar among groups (p = 0.488)
- There was no difference in retained biopsy clip among the groups (average 7.4%, p=0.962) **[Table 1]**

Table 1. Localization Details

Variable	All patients (N=68)	Wire (N=41)	Seed (N=11)	Savi (N=16)	P-value
Length of Localization (minutes), median (range)	25.5 (5 - 143)	25 (5 - 97)	19 (7 - 74)	34.5 (13 - 143)	0.179
Type of Localization					
Mammogram	54 (79.41)	31 (75.61)	9 (81.82)	14 (87.5)	0.763
Ultrasound	14 (20.59)	10 (24.39)	2 (18.18)	2 (12.5)	
Number loc performed					
2	54 (79.41)	29 (70.73)	11 (100)	14 (87.5)	**0.027**
3	13 (19.12)	12 (29.27)	0 (0)	1 (6.25)	
4	1 (1.47)	0 (0)	0 (0)	1 (6.25)	
First specimen containing both clip and localization device					
Yes	62 (91.18)	38 (92.68)	9 (81.82)	15 (93.75)	0.488
No	6 (8.82)	3 (7.32)	2 (18.18)	1 (6.25)	
Biopsy clip in specimen					
No	5 (7.35)	3 (7.32)	1 (9.09)	1 (6.25)	0.962
No Clip at Biopsy	4 (5.88)	2 (4.88)	1 (9.09)	1 (6.25)	
Yes	59 (86.76)	36 (87.8)	9 (81.82)	14 (87.5)	

- For operations performed in the hospital, there was no difference in operative time among the groups with a median of 77.5 min (range 32-197) (p=0.705) or total perioperative time of 508 min (550 min WL vs. 492 RSL vs. 472 SSR, p=0.210)

Results

- However, among operations with delayed start times, there was a longer average delay of 95.5 min (range 23-238) in WL, followed by 61.5min in RSL, compared to 42 min in SSR (p=0.004)
- In the ambulatory surgery center, there was no difference in operative time (average 66.6 min, p=0.108), total perioperative time (average 382.7 min, p=0.809), or delayed start times (average 48.4 min, p=0.557) among the groups
- Although there was no difference in lesion size (average 1.0 cm, range 0.1-12.0cm, p=0.197), there was a greater volume of tissue excised in the WL group (34.7g WL vs. 18.9g RSL vs. 14.2g SSR, p=0.019)
- There was no difference in positive margin rate and 30-day complications among groups **[Table 2]**

Table 2. Comparison of Localization Techniques – Complications and Outcomes

Variable	All patients (N=68)	Wire (N=41)	Seed (N=11)	Savi (N=16)	P-value
30-day complication	3 (4.41)	2 (4.88)	1 (9.09)	0 (0)	0.526
Type of 30-day complication					
Infection	1 (33.3)	0(0)	1 (100)	0 (0)	1.000
Medical complication	1 (33.3)	1 (50)	0 (0)	0 (0)	
Weight of specimen (grams)	29 (2.7-189)	34.7 (5.2-189)	18.9 (2.7-58)	14.2 (3.2-118)	0.019
Positive Margins [cancer only]	16/55 (29.1)	11/33 (33.3)	3/9 (33.3)	2/13 (15.4)	0.596

Conclusion

- SSR and RSL can be used to localize multiple lesions in the same breast with no difference in positive margin rates or complications and less tissue excised compared with WL

Cedars-Sinai Medical Center; Email: marissa.srour@cshs.org