Savi Scout vs Wire Localization: Is one more efficient for OR utilization?

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INTRODUCTION

Since the introduction of image guided wire localization (WL) in the 1970s, this technique has prevailed as the gold standard for surgical excision of non-palpable breast lesions. However, this practice often requires coordinated preoperative wire placement on the day of scheduled surgical excision. This process can lead to inefficiencies in workflow, including surgical delays and longer wait times for patients. Replacing WL of non-palpable breast lesions with technology such as the Savi Scout (SS) guidance system, offers a possible solution to workflow inefficiencies encountered with WL by uncoupling lesion localization with the day of surgery. Prior multi-center studies have established non-inferiority of the SS to WL in regard to effectiveness in excision of target, as well as need for re-excision. Given these advantages of the SS, the system may also be more effective than WL regarding OR utilization. We hypothesized that the use of the SS had positive impacts on our OR utilization by decreasing the incidence of operative delays, allowing on-time case starts, decreasing total operative time, and decreasing patient wait times in pre-op. We aimed to investigate this hypothesis using a query of our institution's OR Datamart for comparison of case times between patients with SS versus WL guidance for partial mastectomy.

METHODS

A query of the OR Datamart at our institution was performed to collect OR information on patients undergoing partial mastectomies with image guidance in the form of pre-operative WL or SS localization between June 1, 2017 and October 2, 2018. Multiple procedure-related timing variables were examined, including delay in scheduled case start, time from patient arriving in prep area to OR, case duration, and whether the case started on time. Types of procedures were also recorded: partial mastectomy alone versus partial mastectomy with sentinel lymph node biopsy (SLNB). Welch's t-tests were used to look at differences in timing between the two groups (WL and SS) on delay in scheduled case start. Wilcoxon Mann Whitney tests were used to look at differences in timing between the two groups on time from patient arriving in prep area to OR, and case duration. Case duration was stratified by type of procedure prior to analysis (partial mastectomy and partial mastectomy + SLNB). The relationship between the type of localization procedure (SS or WL) and whether the case started on time was examined with a Fisher exact test.

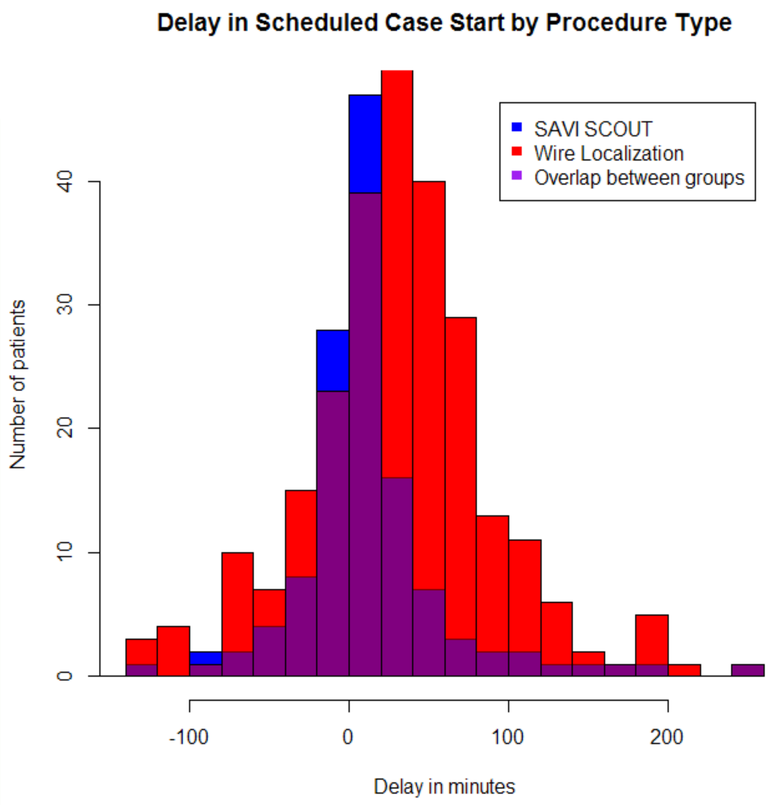
RESULTS

A total of 392 patients were identified, with 127 in the SS group, and 265 in the WL group. When compared to the WL group, patients in the SS group had shorter delays (mean of 12.8 minutes vs. 31.5 minutes; p = 0.001; see Figure), shorter patient wait from prep area arrival to OR times (median of 92 minutes vs. 124 minutes; p = 0.04), and shorter case durations during partial mastectomy + SLNB cases (median of 87 minutes vs. 104 minutes; p = 0.001). In addition, SS cases were less likely to be delayed (p = 0.03) when compared to wire localization cases. However, this did not remain true when looking at only the first start cases of the day, where there was no statistically significant difference between the two groups having on time or delayed starts (p > 0.99).

Time (in minutes) by group status.

	SAVI SCOUT	Wire Localization	p-value
Number of patients	127	265	---
Delay in scheduled case start*	12.8 (49.9)	31.5 (60.3)	**0.001**
Time to OR†	10 (5 – 18)	6 (11 – 23)	0.18
Patient from prep area to OR†	92 (70 – 143.5)	124 (65.8 – 192)	**0.04**
Case Duration†			
Lumpectomy	62 (52 – 74) (n = 67)	63 (51 – 82) (n = 159)	0.89
Lumpectomy + SLN	87 (73 – 100) (n = 49)	104 (78.3 – 141.8) (n = 94)	**0.001**
Start Time‡			
Entire sample			**0.03**
Delayed	64.6% (82)	75.5% (200)	
On Time	35.4% (45)	24.5% (65)	

*Mean (standard deviation), †Median (IQR), ‡Percentages (counts)



DISCUSSION

The SS group was shown to have less delays to the OR overall, though these did not translate to more on time first start of the day cases. The SS cohort was also shown to have decreased wait times in pre-op. Presumably, both of these results would have a positive impact on patient satisfaction with decreased waiting/delays prior to surgery, although this endpoint was not directly studied in this project. In addition, the SS group had decreased case durations noted to be statistically significant when looking at partial mastectomy + SLNB. A higher percentage of on-time starts and decreased case durations point to the potential financial benefits of using SS over WL, secondary to improved OR utilization. Establishing the SS as more efficient for OR utilization when compared to the gold-standard of WL has valuable impacts in guiding cost-effective patient care: improving health care spending with the likely additional benefit of improved patient satisfaction.

REFERENCES

1. Cianna Medical Inc. SAVI SCOUT: How it works. https://www.ciannamedical.com/savi-scout/how-it-works/. Accessed July 30, 2018.
2. Cox CE, Russell S, Prowler V, et al. A prospective, single arm, multi-site, clinical evaluation of a nonradioactive surgical guidance technology for the location of nonpalpable breast lesions during excision. Ann Surg Oncol. 2016;23(10):3168–3174.
3. Deborah O. Jeffries, Lesly A. Dossett, and Julie M. Jorns (2017) Localization for Breast Surgery: The Next Generation. Archives of Pathology & Laboratory Medicine: October 2017, Vol. 141, No. 10, pp. 1324-1329.
4. Mango VL, Wynn RT, Feldman S et al (2017) Beyond wires and seeds: reflector-guided breast lesion localization and excision. Radiology 284(2):365–371.