

Surgical Treatment of Pseudoaneurysm of the Breast

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Abstract

Formation of a pseudoaneurysm is occasionally caused by a core biopsy procedure on the breast. Most of these pseudoaneurysms are treated by radiologists and are reported in radiology journals. Herein, we report the surgical management of one of these vascular lesions.

Core biopsy with or without radiographic guidance has replaced open biopsy for most breast lesions. This technique accurately establishes the diagnosis in most patients and is usually accomplished without complication. One complication which has been reported is the formation of a pseudoaneurysm resulting from injury to a vessel during the procedure. In this article, we report the surgical management of a pseudoaneurysm which resulted from a core biopsy of the breast.

CASE REPORT

A 57-year-old woman was evaluated for pain in her right breast. She had previously had a lumpectomy and radiotherapy for infiltrating carcinoma several years earlier. Her most recent mammogram showed a well circumscribed and round density in the same breast. Because of concern for recurrent cancer, a 14 gauge core needle biopsy was done. There was significant bleeding after the biopsy which was controlled by compression. Despite the compression, the patient developed a large hematoma around the biopsy site which resolved over the next month.

She later experienced unrelenting pain near her biopsy site and was referred for surgical evaluation. Her examination then was normal. A follow-up Doppler ultrasound, however, revealed a pulsatile pseudoaneurysm near her previous biopsy site (Figure 1 a, b).

Figure 1a

Ultrasound and Doppler color ultrasound showing the pseudoaneurysm in the breast with vascular flow

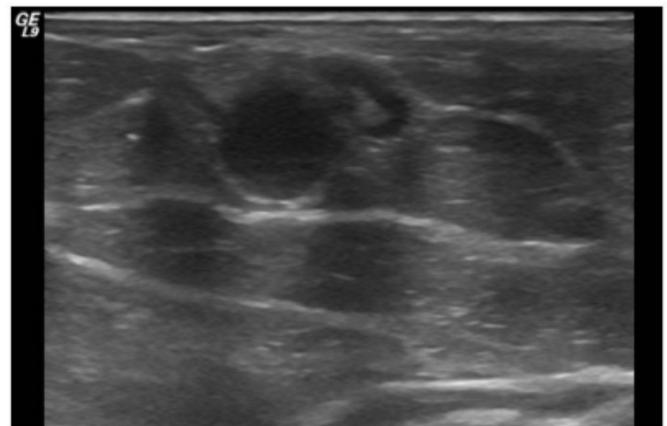
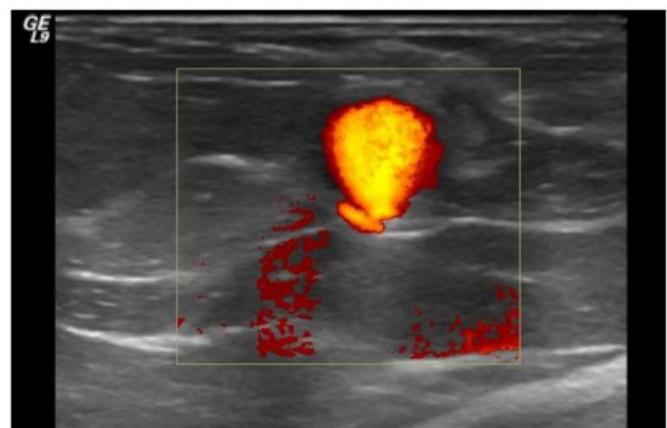


Figure 1b

Ultrasound and Doppler color ultrasound showing the pseudoaneurysm in the breast with vascular flow



The patient insisted on a surgical approach to remove and treat the pseudoaneurysm. An ultrasound-guided wire-

localized biopsy was done. Pathology revealed an 8-mm pseudoaneurysm and an adjacent normal lymph node. Her pain resolved after the biopsy.

DISCUSSION

Including our own patient, we have identified 19 patients with pseudoaneurysms of the breast during the past 20 years. (Table 1) Most of these have resulted from ultrasound-guided or stereotactic breast core biopsy.

Table 1

Author	Year	Bx technique	Bleeding	Hematoma	Delay	Diagnosis	Definitive Rx
Smith ¹	1996	Core biopsy	No	Yes	9 mos	MMG/US	Not resolved
Wilkes ²	1996	S/P lumpectomy			3 mos		Surgical coagulation
Beres ³	1997	Core biopsy	Yes	Yes	6 mos	MMG/US	Percutaneous coil
Chorny ⁴	1997	Core biopsy	Yes	Yes	6 mos	US	Surgical resection
Schiller ⁵	1998	Spontaneous					
Bazzocchi ⁶	2002	Core biopsy	Yes	No	2 wks	US	EtOH*/compression
Vavala ⁷	2002	Core biopsy	Yes	No	4 mos	US	Angioembolization
McNamara ⁸	2002	Core biopsy	No	Yes	Immediate		Thrombin injection
Alvarez ⁹	2003	Core biopsy	No	Yes	9 days	US	Compression Rx
Alvarez	2003	Core biopsy	No	Yes	4 mos	US	Surgery for cancer
Dixon ¹⁰	2004	Core biopsy	Yes	Yes	<3 mos	US	Surgical resection
El Khoury ¹¹	2007	Core biopsy	Yes	No	3 wks	US	Spont. thrombosis
Al Hadidy ¹²	2006	S/P blunt trauma					
Lee ¹³	2009	S/P blunt trauma	No	No		US/ CT	Spont. thrombosis
Sohn ¹⁴	2009	Core biopsy	Yes	Yes	Immediate	US	Compression
Sasada ¹⁵	2010	Core biopsy	Yes	No	6 wks	USCT angiogram	Full lumpectomy
Jung ¹⁶	2012	Core biopsy	Yes	No	5 hrs	US	Compression
Bitencourt ¹⁷	2012	Core biopsy					
McClenathan	2013	Core biopsy			2 mos	US	Surgical resection

*Ethyl alcohol

During the past 20 years, the paradigm for evaluating breast lesions has evolved from surgical biopsy to ultrasound-guided or stereotactic core biopsy techniques. Most of these biopsies are performed by radiologists rather than surgeons. While these procedures are usually without complication, bleeding and hematoma formation have been reported and injury to vessels can occasionally lead to formation of a pseudoaneurysm. These pseudoaneurysms may also result from blunt trauma.^{12,13} Core biopsy results ranged from fibroadenoma to carcinoma and to benign lymph node.

Of the patients who had a pseudoaneurysm form after a core biopsy, at least ten patients had bleeding reported during the procedure.^{3,4,6,7,10,11,14,15,16} Hematoma formation was also reported in eight patients.^{1,2,3,8,9,10,14} Formation of a pseudoaneurysm was recognized immediately in a couple of patients, but in others, the diagnosis was not made for weeks to months.

The diagnosis of a pseudoaneurysm was usually made with ultrasound, sometimes supplemented with Doppler color ultrasound. In most patients, initial treatment was attempted by the radiology team. Compression techniques were used in at least seven patients but were successful in only two.^{1,4,6,7,8,9, 16} In two patients, the aneurysm thrombosed spontaneously.^{11,13} Percutaneous embolization and coil placement were used twice.^{3,7} Surgical treatment

was used for four patients including our own.^{4,9,10} Since our patient had a non-palpable lesion, wire-localization was used and a limited surgical procedure removed the lymph node and the aneurysm.

CONCLUSION

The increasing use of core biopsy for breast lesions will occasionally cause formation of a pseudoaneurysm. Most of these vascular lesions are treated by radiologic intervention. When those techniques fail, or when the patient requests, a surgical approach can be used.

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