The patient received psychologic counseling and support in adjusting to the results of the mastectomy. To date, she has not elected to pursue reconstruction, but requested that her unique experience be shared and change policy.

False-positive core needle biopsies (CNB) are rarely reported in the literature. False positives in most cases are in screening patients (<0.5%) when ductal carcinoma in situ (DCIS) is upstaged in reporting as invasive cancer or when no lesion is subsequently found is explained by very small lesions having been excised completely by the core biopsy.

Hidradenoma is a recognized source of diagnostic confusion and on FNA can mimic breast carcinoma and other adenocarcinoma, but has not been reported before as source of a false-positive diagnosis of breast cancer on core biopsy.

What makes this case an essential learning point is that as skin lesions can often be confused with breast lesions and they should be reported differently both radiologically and clinically.

Subsequent clinical guidance from the Association of Breast Surgeons regarding biopsy of skin lesions is reproduced below:

Biopsy of lesions within or attached to skin can often be carried out using a 3- or 4-mm punch biopsy needle under local anesthetic. This is particularly suitable for suspected Paget’s disease of the nipple and local recurrences in the skin.

Post-traumatic Neuroma Following Breast Surgery

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Figure 2. Core biopsy of 10-mm cutaneous lesion occurring at lateral end of previous breast wide local excision scar. Note groups of apparent ductal cells thought morphologically consistent with ductal carcinoma.

Figure 3. Mastectomy specimen showing the lesion previously core biopsied was well circumscribed and had cystic spaces and, although it extends deep into the subcutis, was thought more likely to be a primary lesion of the skin.

A 42-year-old patient was diagnosed in 1982 with left breast cancer stage II and underwent left modified radical mastectomy. In 2000, she underwent a right segmental mastectomy and right axillary dissection for invasive ductal carcinoma with ductal
carcinoma in situ of the right breast. The resection margins were all negative for invasive or in situ carcinoma. Annual follow-up mammograms and ultrasounds only showed stable scar tissue and no developing abnormalities in the right breast or axilla. When she presented in May 2003, no abnormality was palpated in her right axilla on physical examination. Sonography examination showed an ovoid, well-defined, homogenously hypoechoic 7 mm in size mass in the upper outer aspect of the right breast at 10 o’clock (Fig. 1). The region was tender at sonographic examination. To differentiate it from an abnormal lymph node, a fine-needle aspiration was attempted, but could not be completed due to extreme pain. Follow-up US 1 month later again showed the very mobile tender hypoechoic mass at 10 o’clock. After profuse injection of local anesthetic, an ultrasound-guided core biopsy was performed using a 14-gauge needle. Four samples were obtained. Pathology showed disorganized proliferation of nerve fibers suggestive of a traumatic neuroma (Fig. 2). Patient was treated conservatively. The neuroma appears stable on follow-up US (6-year follow-up).

Traumatic neuroma is a well-known disorder occurring after trauma or surgery, representing a reactive hyperplasia of nerve tissue, usually at the proximal end of a severed nerve. Neuroma mostly occurs in the lower limbs after surgical amputation, followed by the head and neck. Breast or axillary locations are very rare. Traumatic neuromas have been classified into two major categories according to their anatomic location with respect to the proximal nerve end. Spindle neuromas occur in intact nerves and are caused by chronic irritation or friction. Terminal (amputation) neuromas, as in our case, arise at the proximal nerve end. They are typically identified on ultrasound as a fusiform mass or focal enlargement, with “bulbous-end” morphology in case of terminal type. Because of their fibrous capsule, traumatic neuromas are typically well defined and hypoechoic (Fig. 1). At histopathology, traumatic neuromas are nonencapsulated, tangle, nonneoplastic masses of axons, endoneurial-, Schwann-, and perineurial cells in a dense collagenous matrix with surrounding fibroblasts. The multidirectional proliferation of cells in an abortive attempt to repair the severed nerve results in disorganization of the neurogenic tissue (Fig. 2). Initial conservative therapy (sympathetic blockade with long-acting local anesthetics, cortisone injection, acupuncture, transcutaneous and direct nerve stimulation, and physical therapy) can be successful in up to 50% of patients. Surgical resection is reserved for patients who do not respond to conservative treatment.

Figure 1. Oval well-circumscribed hypoechoic mass, with abrupt interface (arrows), and no abnormal vascularity at color Doppler interrogation.

Figure 2. H&E stain at 100× magnification showing an irregular growth of small and medium nerve fiber bundles consistent with a neuroma.