



DEPARTMENT OF PATHOLOGY

Short Report in Pathology

Organ system: Breast

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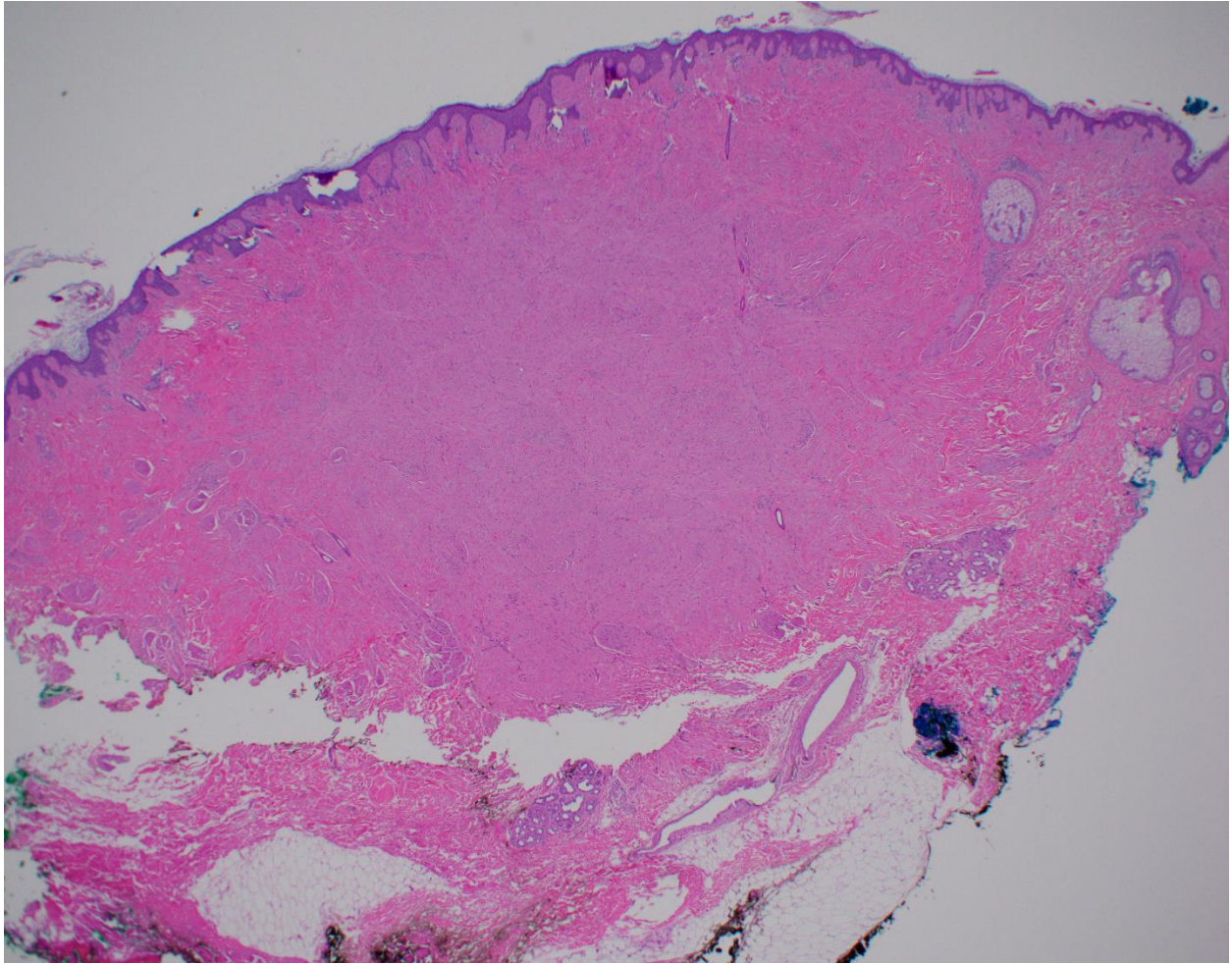
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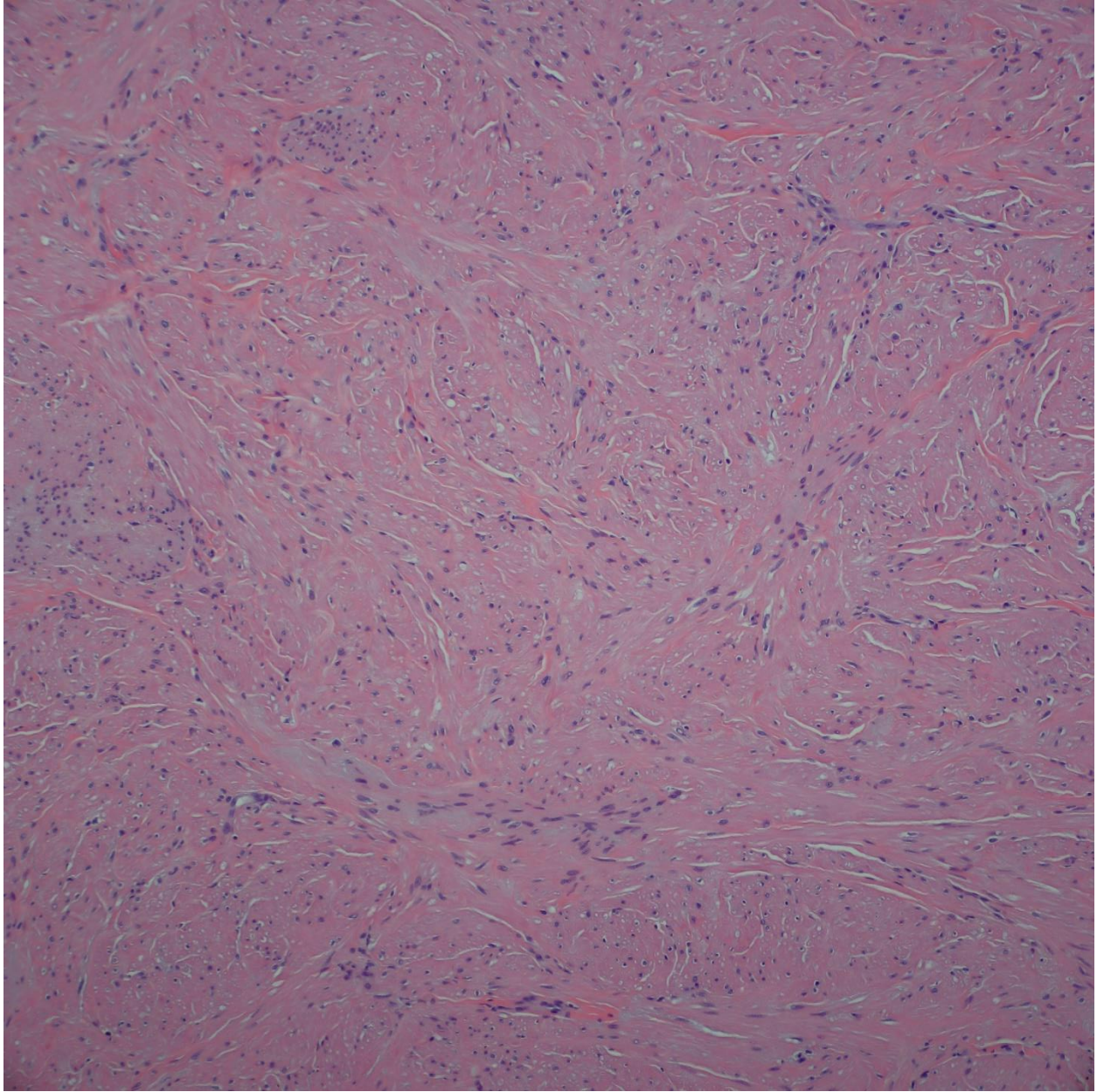
History:

An 88-year-old man presented with a palpable, painless right breast nodule under his nipple that had been present for approximately 2 months. He reported that the nodule had slightly increased in size; however, he denied pain, drainage from the nipple, fever, weight loss, or lymphadenopathy. On physical examination, the mass was round, mobile, and firm. While the patient was advised to undergo imaging studies with ultrasound and mammography as part of the initial work up, his preference was to undergo surgical excision of the palpable mass.

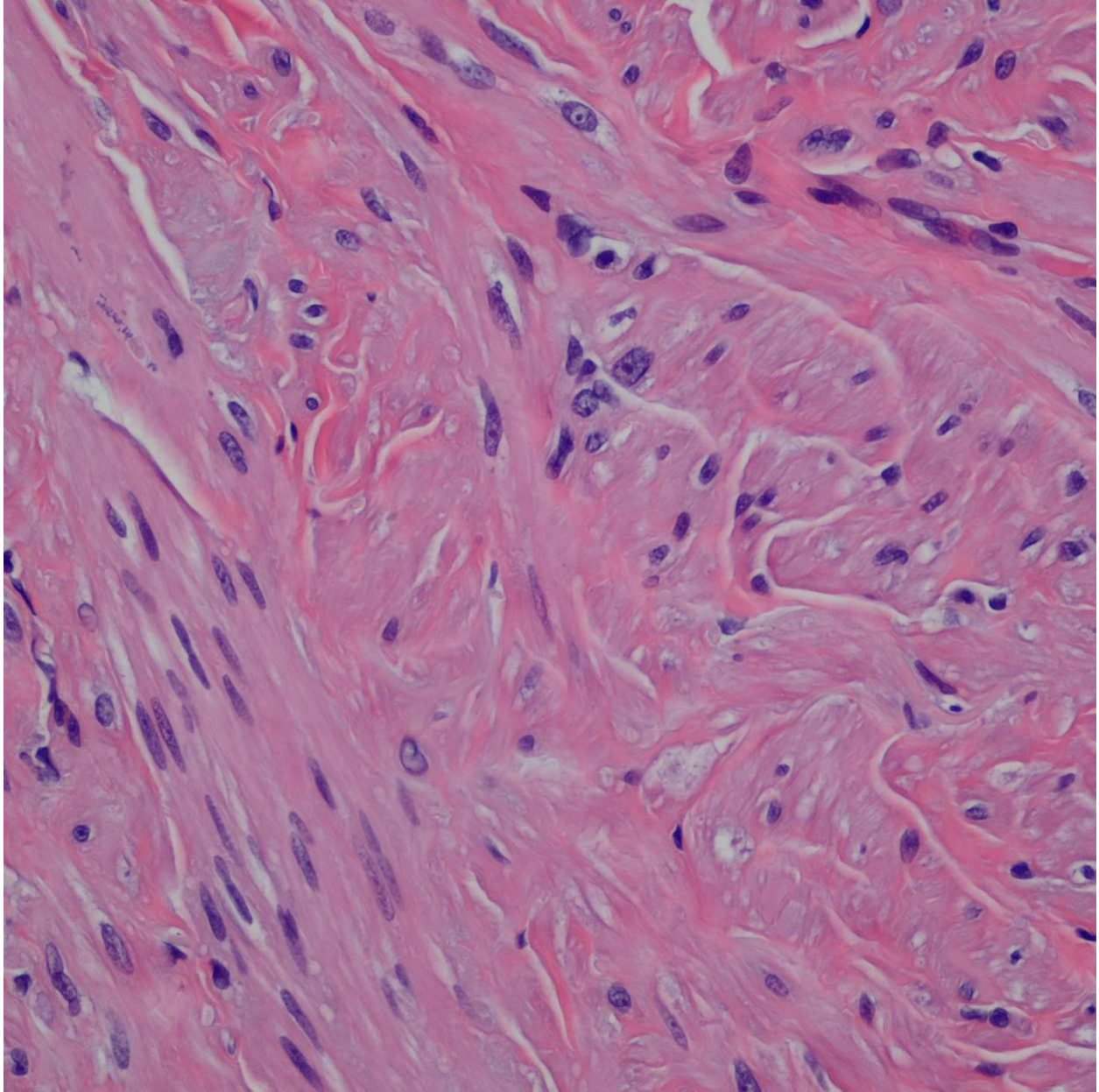
Microscopic Images:



Nodular proliferation of spindle cell with slightly indistinct borders interfacing with the surrounding subareolar dermis. The overlying epidermis was histologically unremarkable. (H&E, 20X)

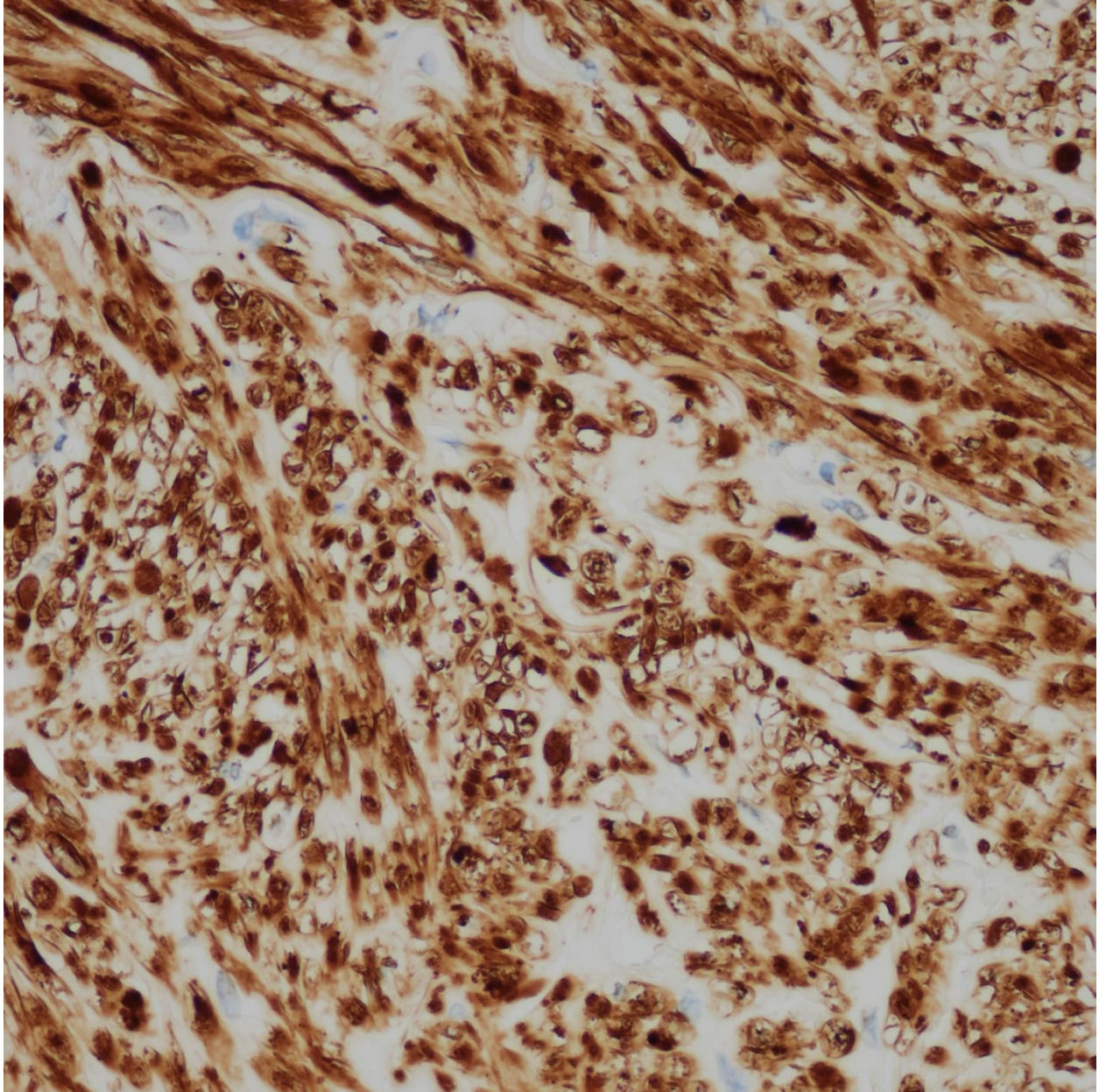


Interlacing bundles of spindle cells with bland, elongated nuclei, with fine chromatin and fibrillary, eosinophilic cytoplasm. (H&E, 100X)



There was no significant atypia, increase in mitotic activity, or necrosis present within the spindle cell proliferation. (H&E, 400X)

Immunohistochemistry:



Desmin was strongly and diffusely positive (400X).

Positive Stains: Desmin, Smooth Muscle Actin, Estrogen Receptor

Negative Stains: CD34, S100

Diagnosis:

Leiomyoma of the nipple.

Differential diagnoses:

1. Myofibroblastoma
2. Leiomyomatous hyperplasia of myoepithelial cells in adenosis
3. Myoid hamartoma
4. Neurofibroma
5. Leiomyosarcoma

Discussion:

Leiomyomas of the nipple are rare, smooth muscle neoplasms that are thought to arise from mamillary muscle of the nipple and are classified as part of a subtype of cutaneous leiomyoma known as “genital leiomyoma”, which also includes leiomyomas arising from the embryologically-related dartos muscle of the scrotum or the labia majora (1). In the evaluation of spindle cell neoplasms in the breast, it is important for surgical pathologists to keep leiomyoma in their differential, especially if arising in retroareolar location. Though benign, these tumors can show infiltrative edges, as this case did and as has been reported previously (2). The infiltrative edges should not be misinterpreted as evidence of possible malignancy, i.e. leiomyosarcoma. Despite the infiltrative edges, leiomyomas of the nipple show bland nuclei with no increase in mitotic activity or necrosis. These tumors should not be confused with other ER-positive spindle cell tumors that are known to arise in the male breast that may show SMA and desmin positivity, such as myofibroblastoma. Unlike myofibroblastomas, leiomyoma is negative for CD34 immunostaining and lacks the keloidal-like eosinophilic collagen bands often seen in myofibroblastoma. The difference may be difficult to definitively assess in limited material such as core biopsies. In either case, the recommended follow-up would be surgical excision which is effective for definitive pathologic diagnosis and treatment. Leiomyoma of the nipple may be distinguished from entities such as adenosis with leiomyomatous hyperplasia of myoepithelial cells and myoid “hamartoma”, other benign breast mesenchymal lesions with myoid differentiation, by the absence of glandular epithelial elements.

References:

1. Holst VA, Junkins-Hopkins JM, Elenitsas R. Cutaneous smooth muscle neoplasms: clinical features, histologic findings, and treatment options. *J Am Acad Dermatol*. 2002;46(4):477-4. doi:S0190-9622(02)99698-2
2. Hammer P, White K, Mengden S, Korcheva V, Raess PW. Nipple leiomyoma: A rare neoplasm with a broad spectrum of histologic appearances. *J Cutan Pathol*. 2019;46(5):343-346. doi:10.1111/cup.13423