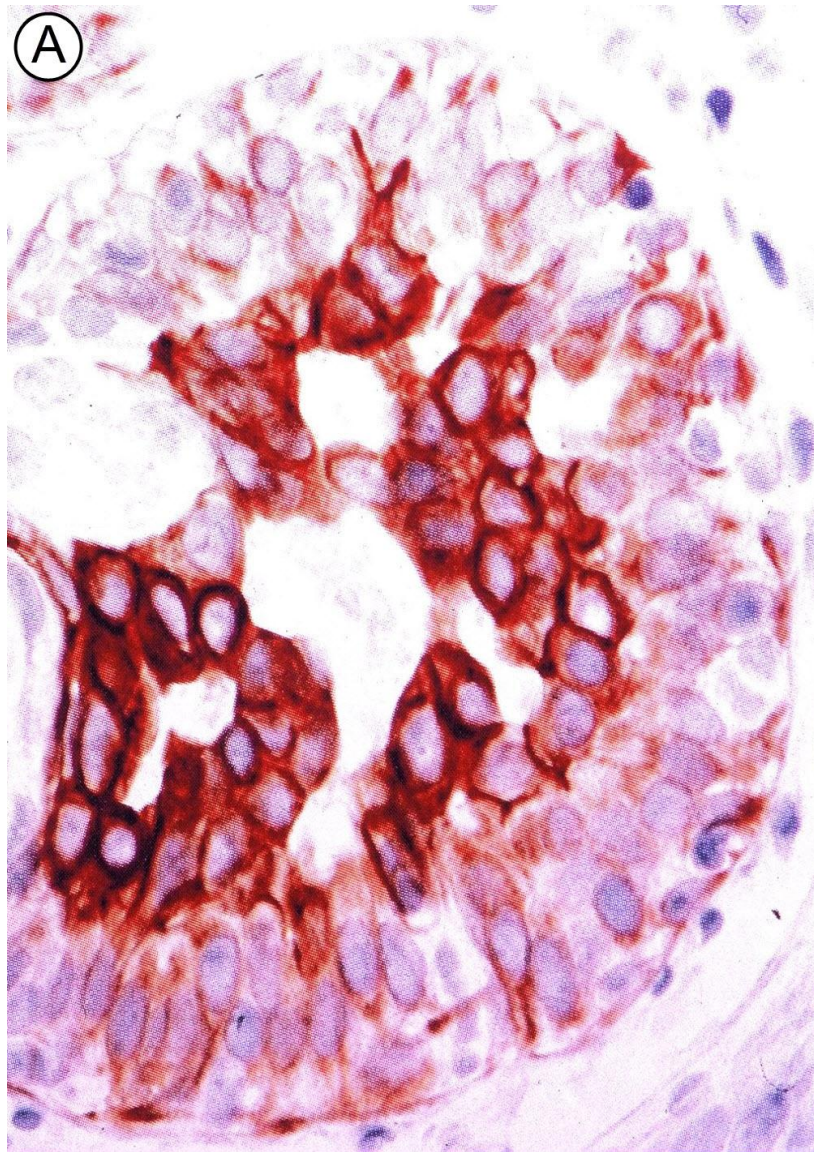


Chapter 18

Breast cancer

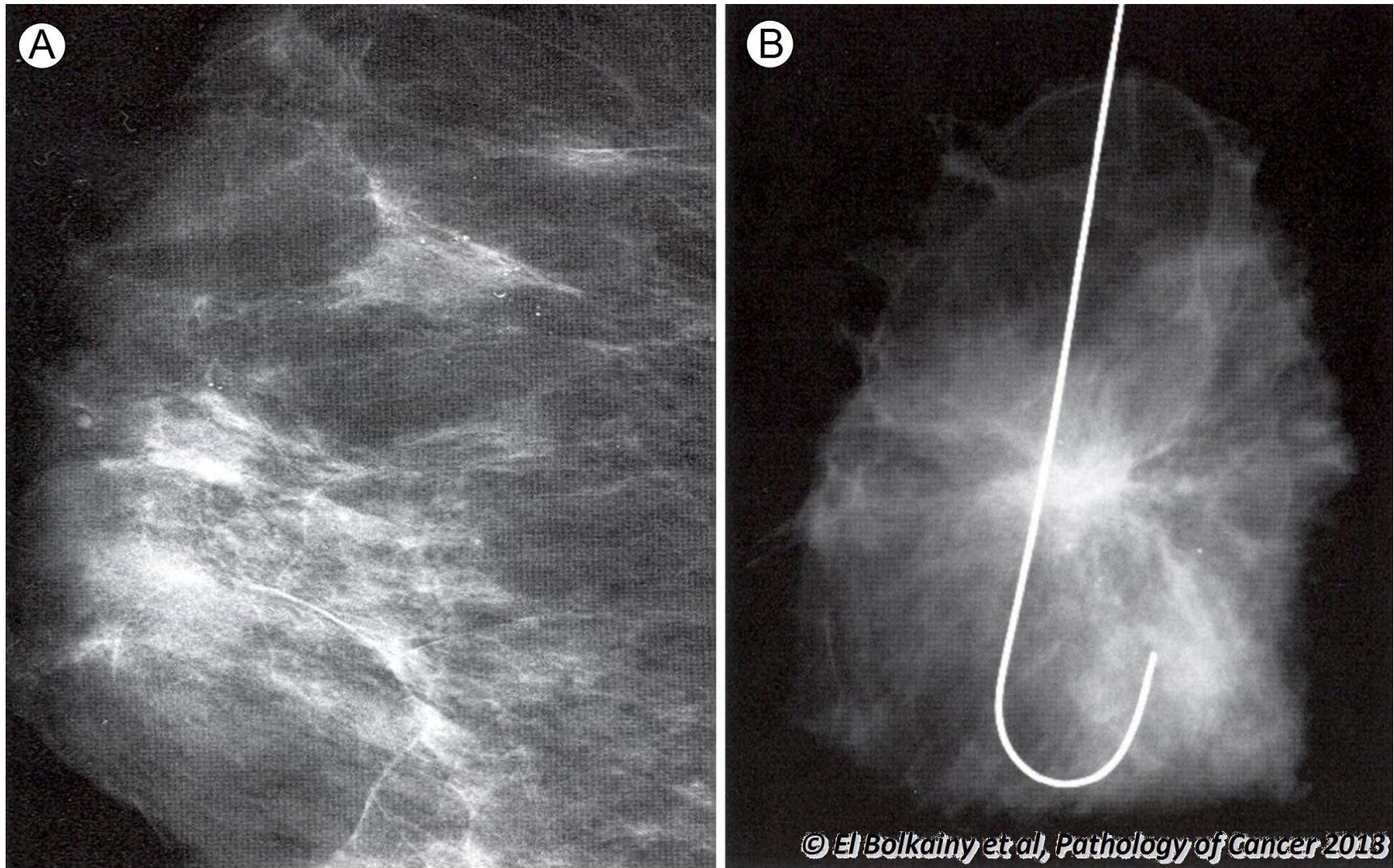
18.1 CK Immunoreactivity.



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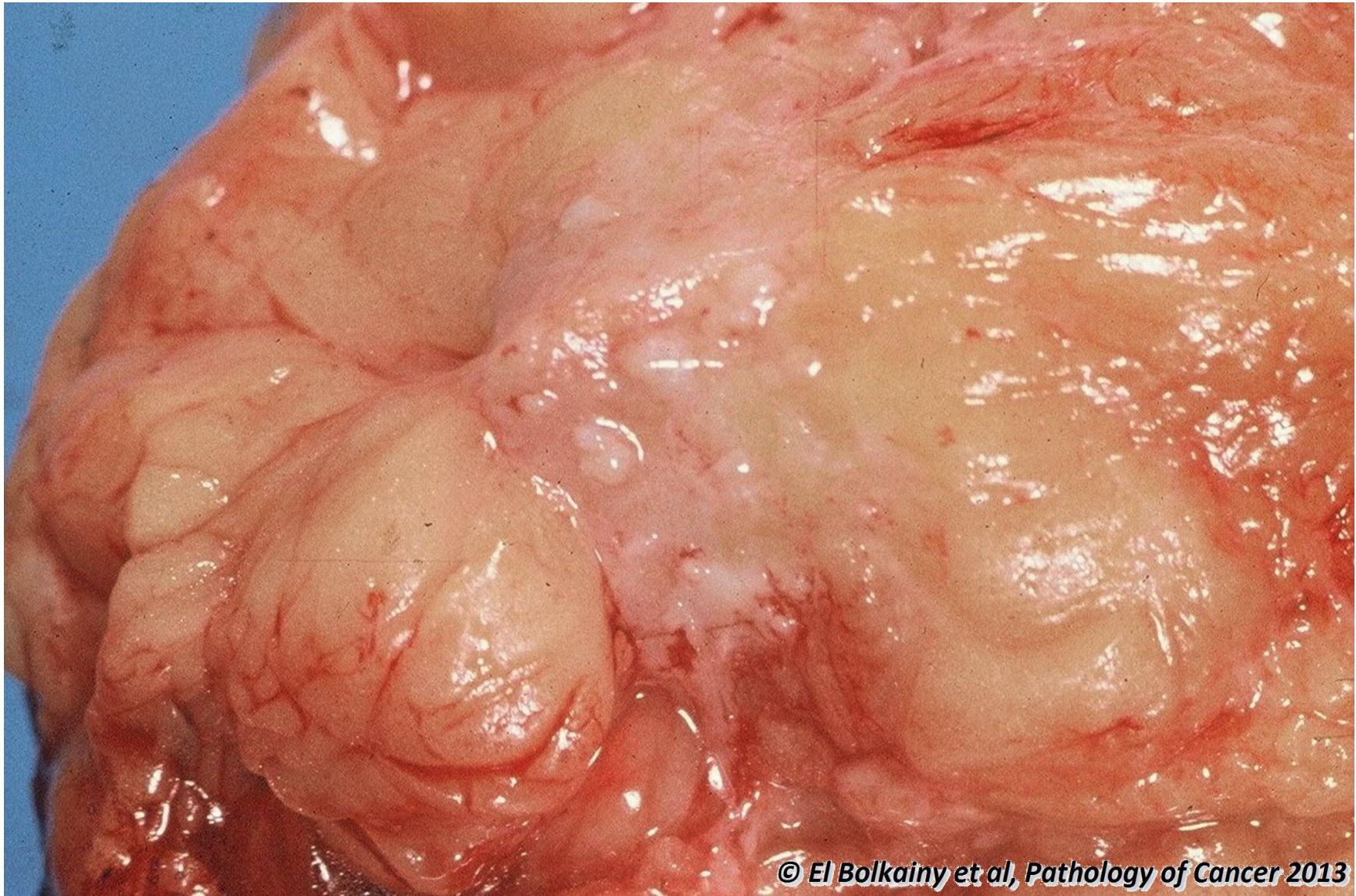
Picture 18-1 CK Immunoreactivity. **A** Luminal cells are positive for CK 8/18. **B** Basal cells are positive for CK 5/6. Basal cells also positive for actin, p63, S-100, calponin, and CD10.

18.2 Breast mammography.



Picture 18-2 Breast mammography. **A** Microcalcification helps to detect associated ductal carcinoma in situ. **B** Guide-wire localizes unpalpable small tumor to the surgeon.

18.3 Gross feature of comedo carcinoma of breast.

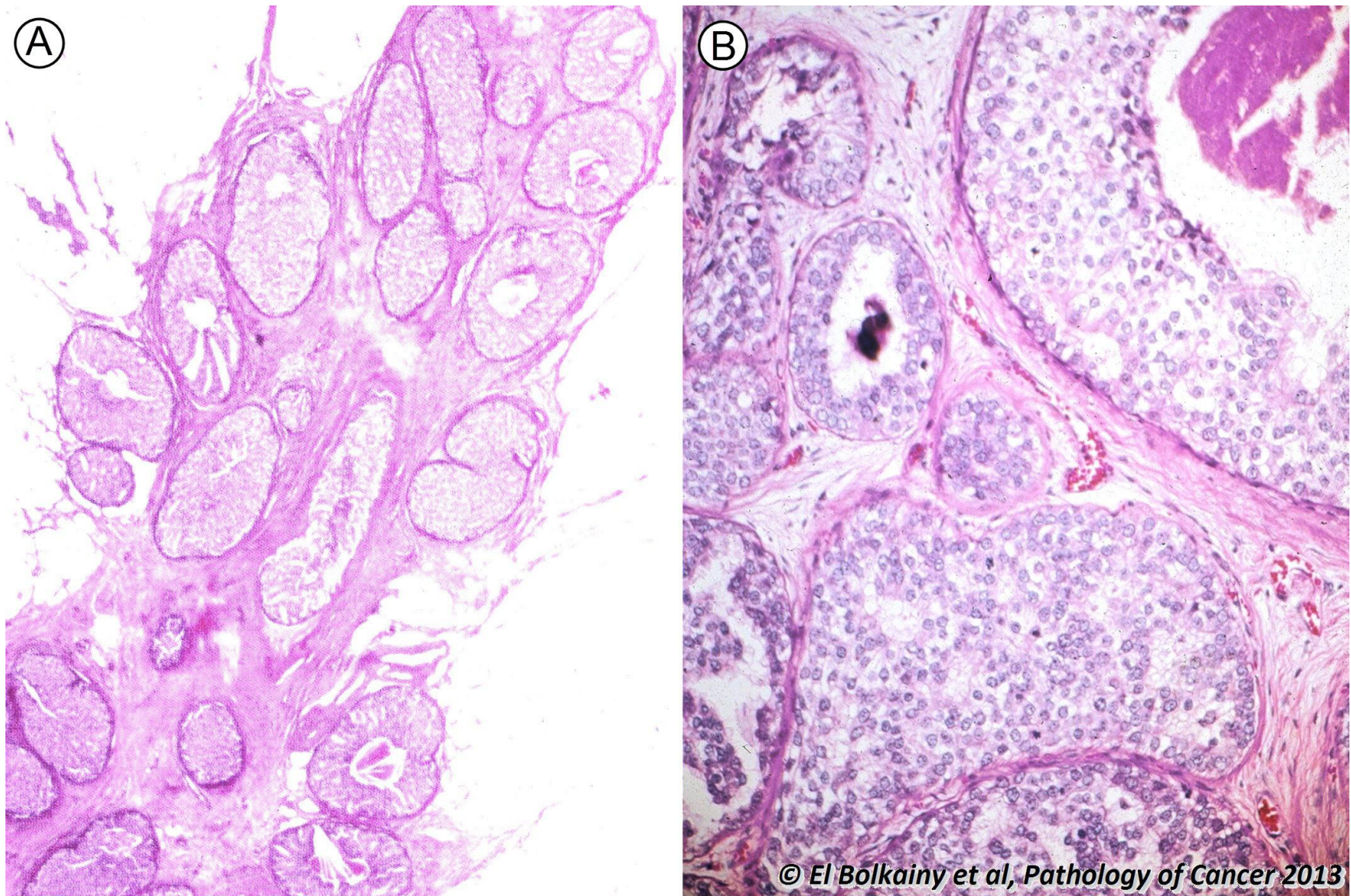


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Picture
18-3

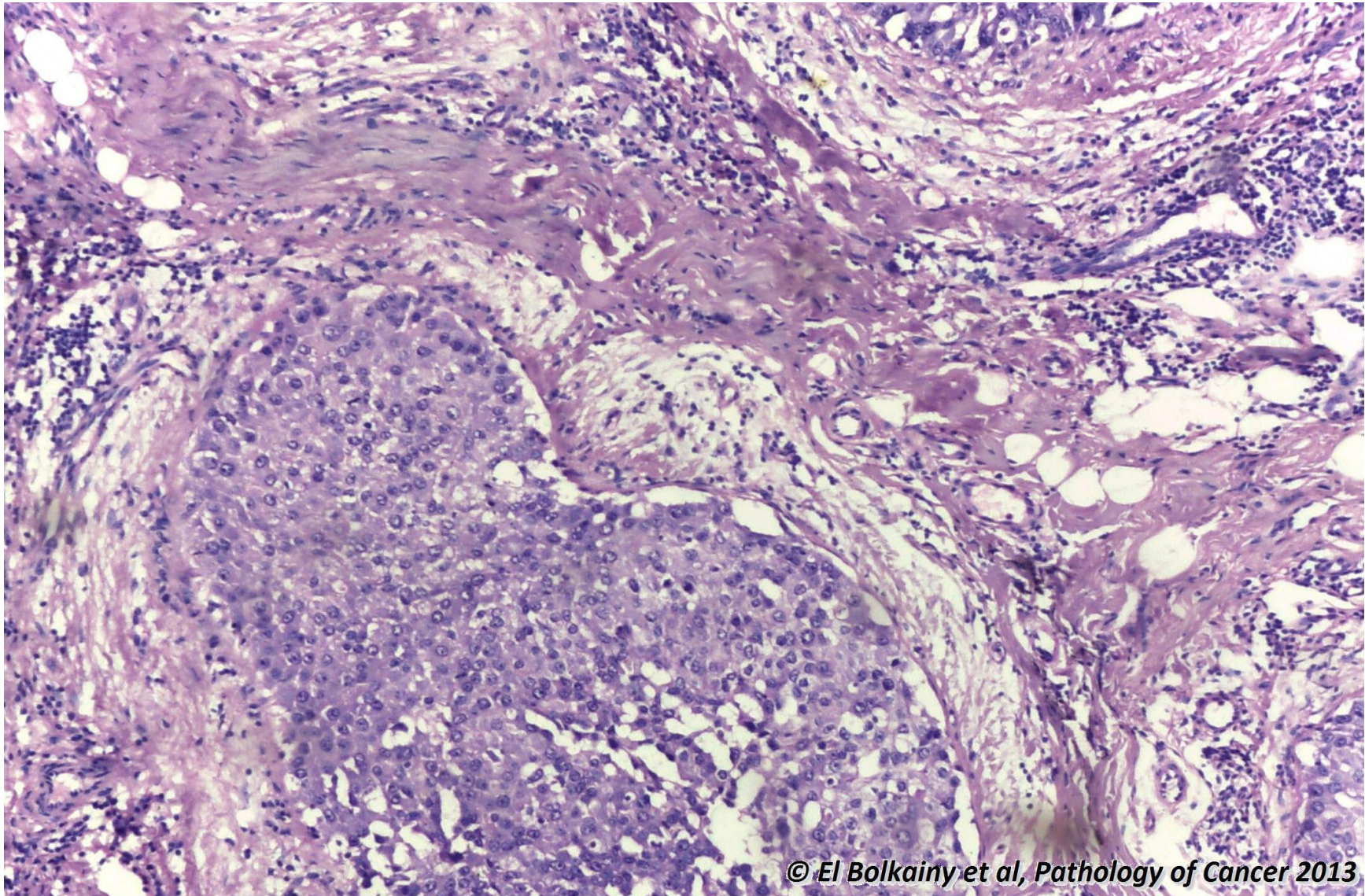
Gross feature of comedo carcinoma of breast. On cut section, necrotic tumor tissue is expressed from the ducts.

18.4 Histology of comedo carcinoma.



Picture 18-4 Histology of comedo carcinoma. **A** Low power, malignant cells fill the duct but no invasion of the stroma. **B** Central necrosis and microcalcification of the tumor limited inside the ducts.

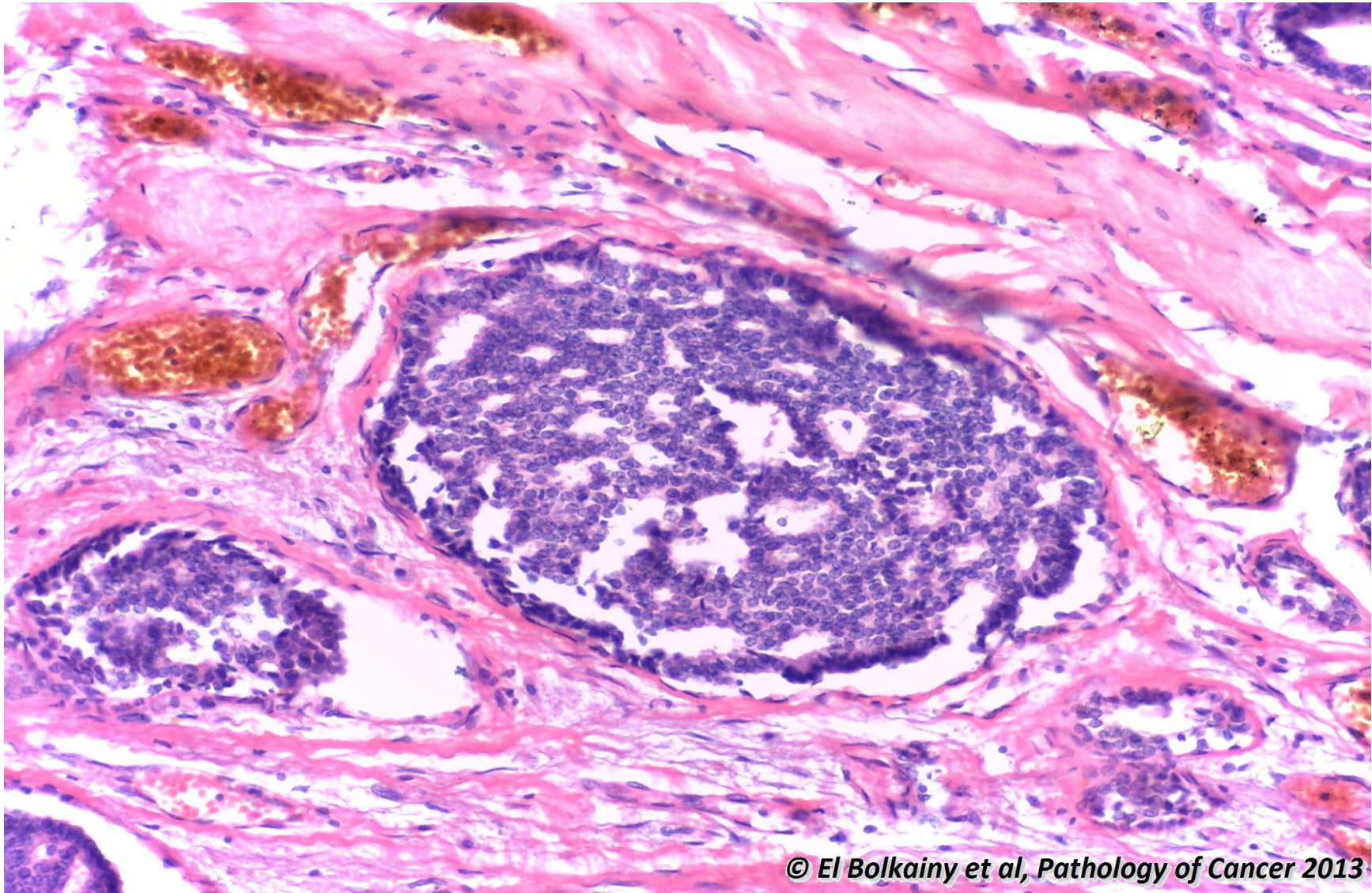
18.5 Histology of intraduct carcinoma, solid type.



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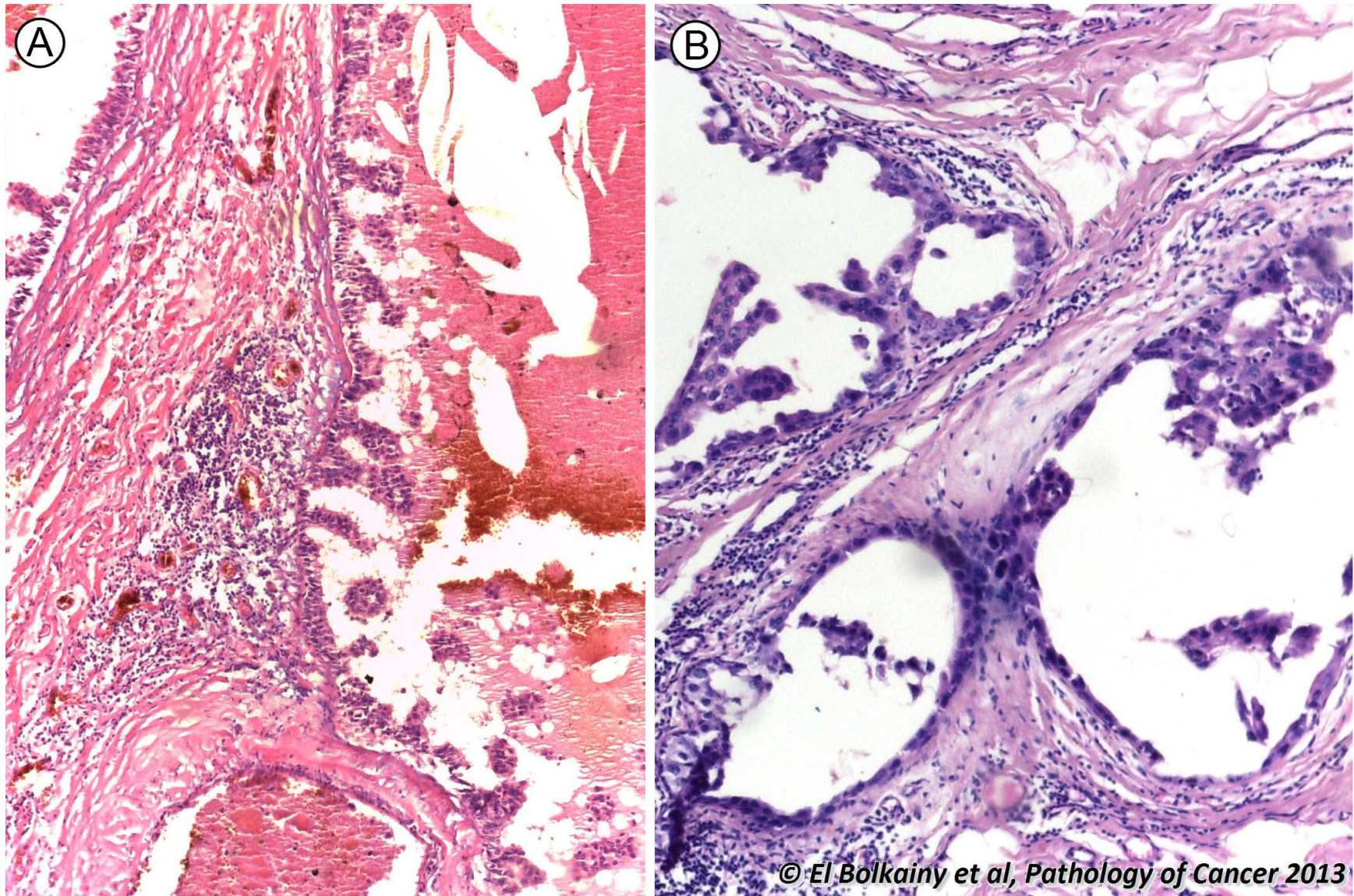
Picture 18-5 Histology of intraduct carcinoma, solid type. Carcinoma cells fill the ducts without central necrosis or invasion of basement membrane.

18.6 Histology of intraduct cribriform carcinoma.



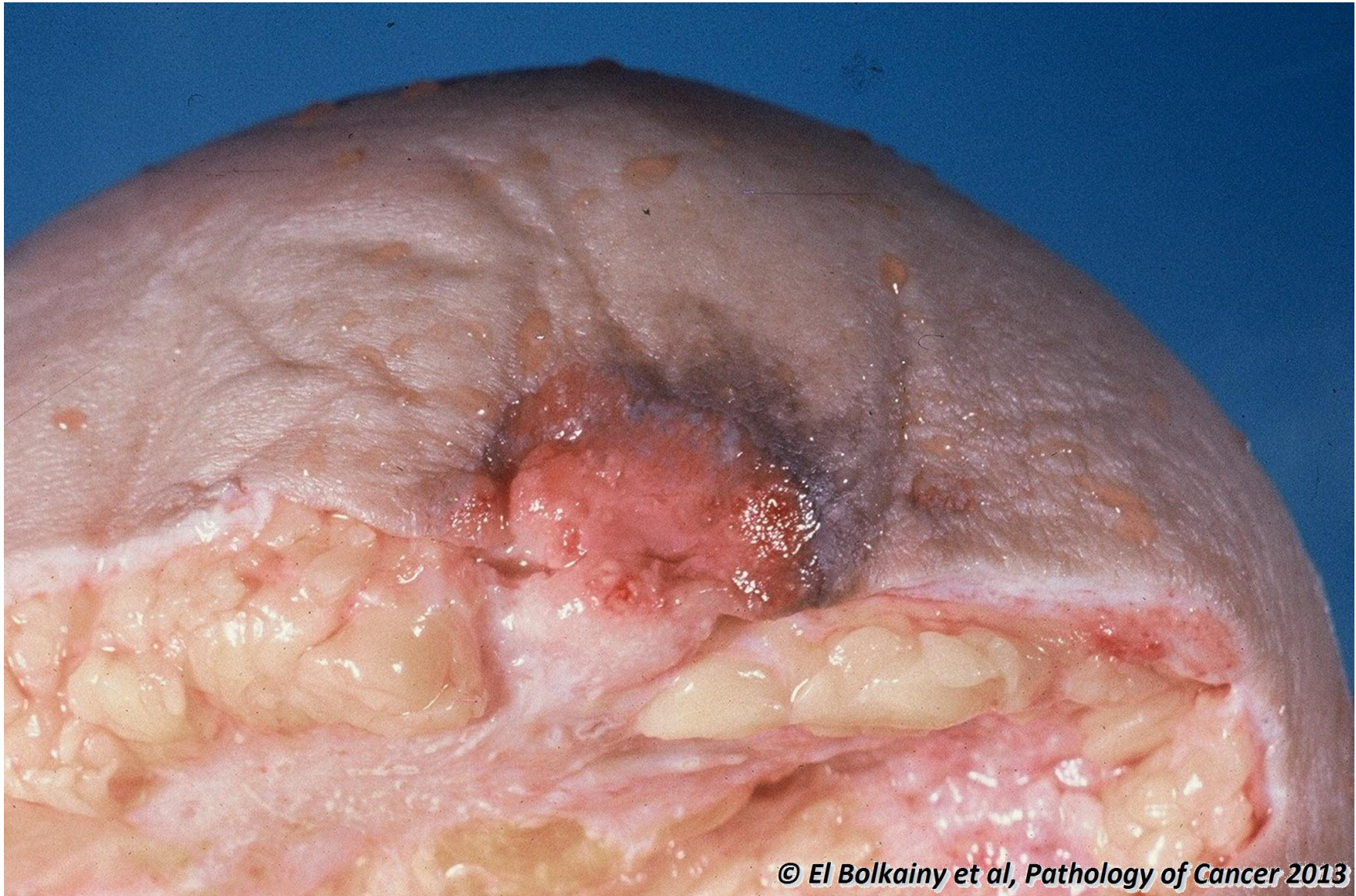
Picture 18-6 Histology of intraduct cribriform carcinoma. Note that the tumor contains multiple lumens (fenestrations) of rather equal size.

18.7 Intraduct carcinoma.



Picture 18-7 Intraduct carcinoma. **A** Micropapillary type showing multiple small short avascular papillae. **B** Clinging carcinoma in situ composed of malignant single cell lining since most of the cells are lost into the lumen.

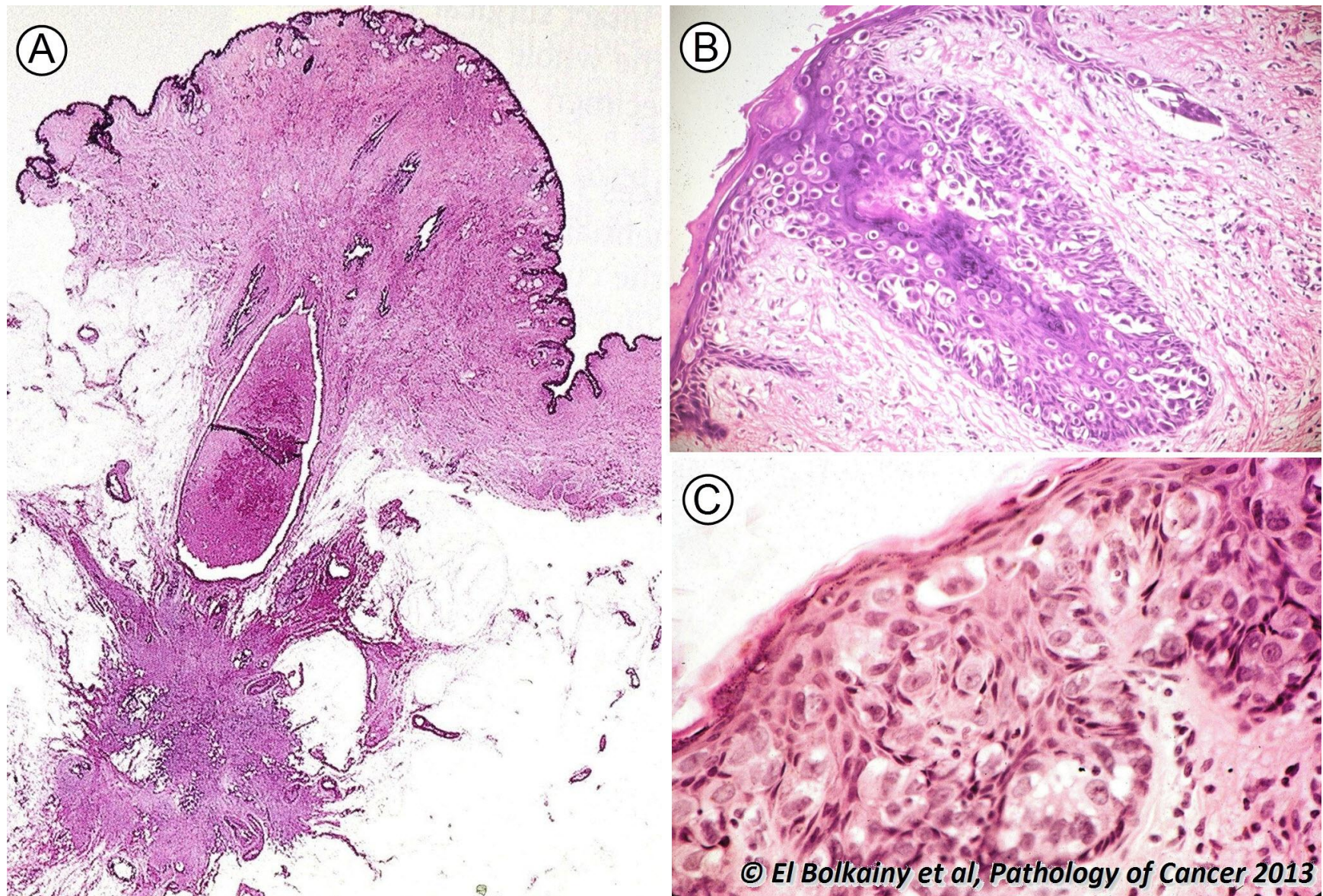
18.8 Gross appearance of Paget disease of nipple.



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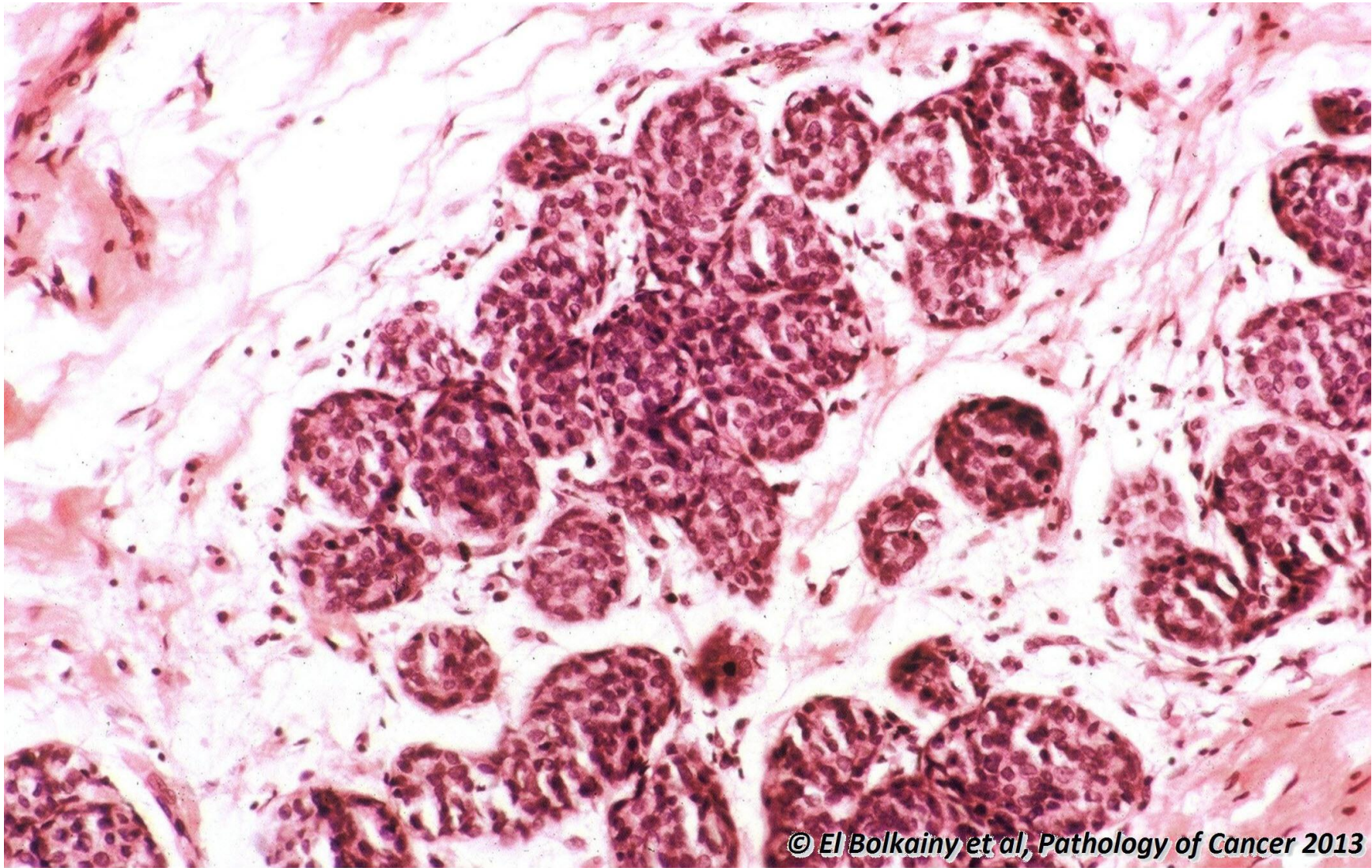
Picture 18-8 Gross appearance of Paget disease of nipple. There is superficial erosions of the skin of nipple. Associated underlying malignancy in this case was intraduct carcinoma without stromal invasion.

18.9 Histology of Paget disease of nipple.



Picture 18-9 Histology of Paget disease of nipple. **A** Low power, showing associated retroareolar invasive duct carcinoma. **B and C** High power, there is epidermal invasion by malignant cells with clear cytoplasm.

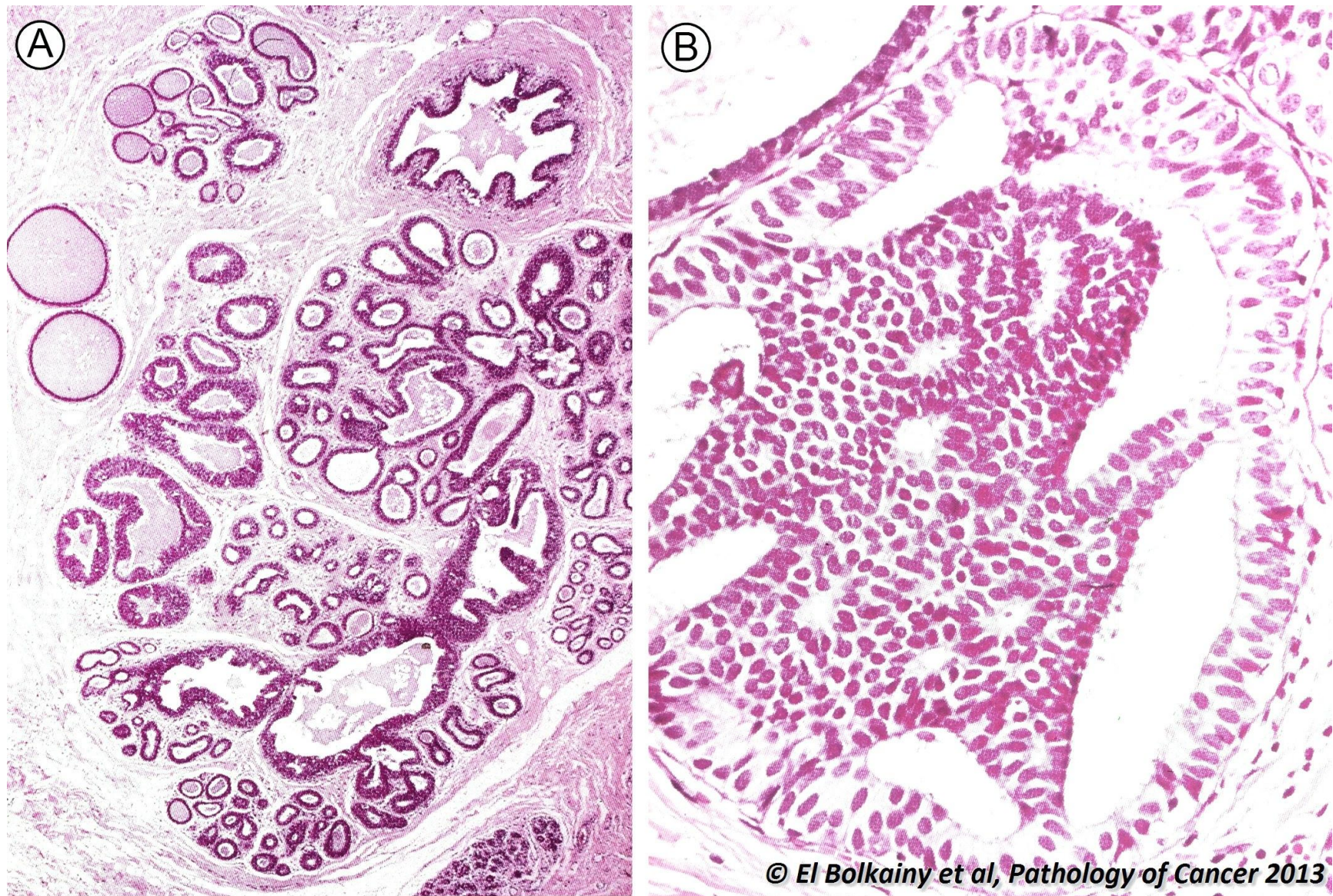
18.10 Histology of lobular carcinoma in situ.



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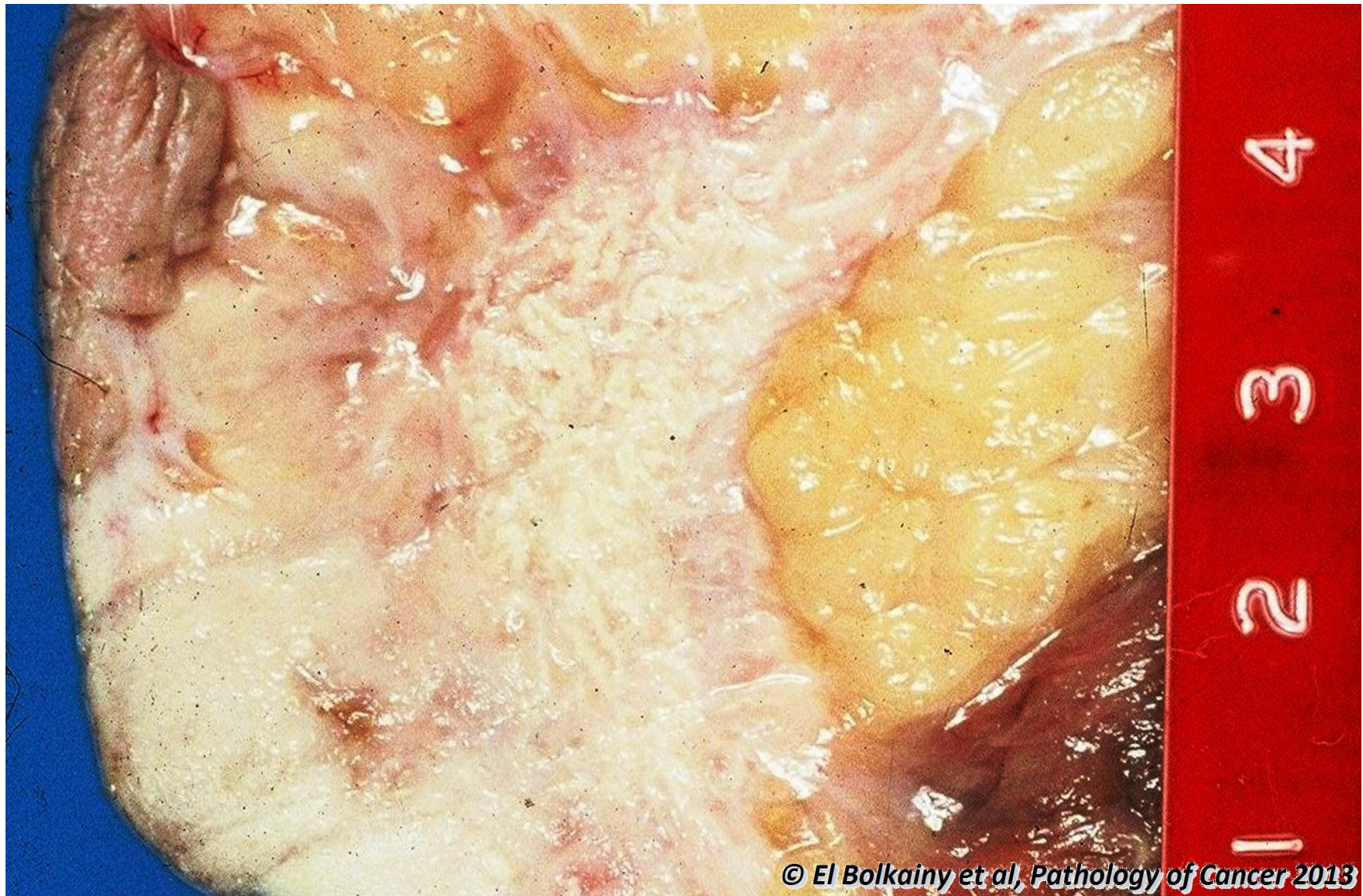
Picture 18-10 Histology of lobular carcinoma in situ. Besides obliterating the lumen, lobular carcinoma in situ distends the terminal-ductal lobular unit, but there is no invasion of the stroma.

18.11 Histology of atypical ductal hyperplasia.



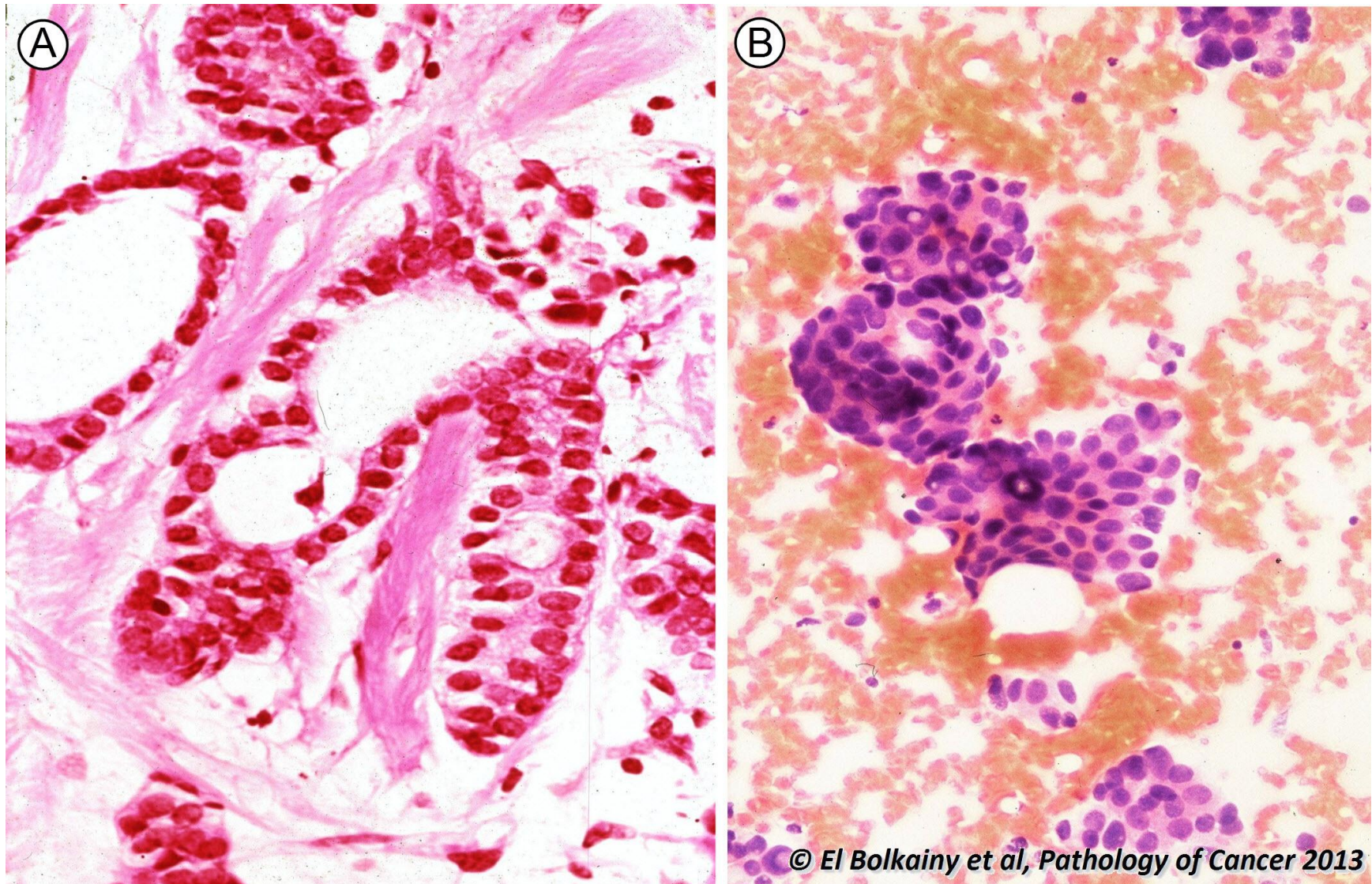
Picture 18-11 Histology of atypical ductal hyperplasia. **A** Low power, atypical ducts appear overstained. **B** High power: although individual cells are anaplastic, the fenestrations pattern simulate the usual ductal hyperplasia.

18.12 Gross appearance of invasive duct carcinoma.



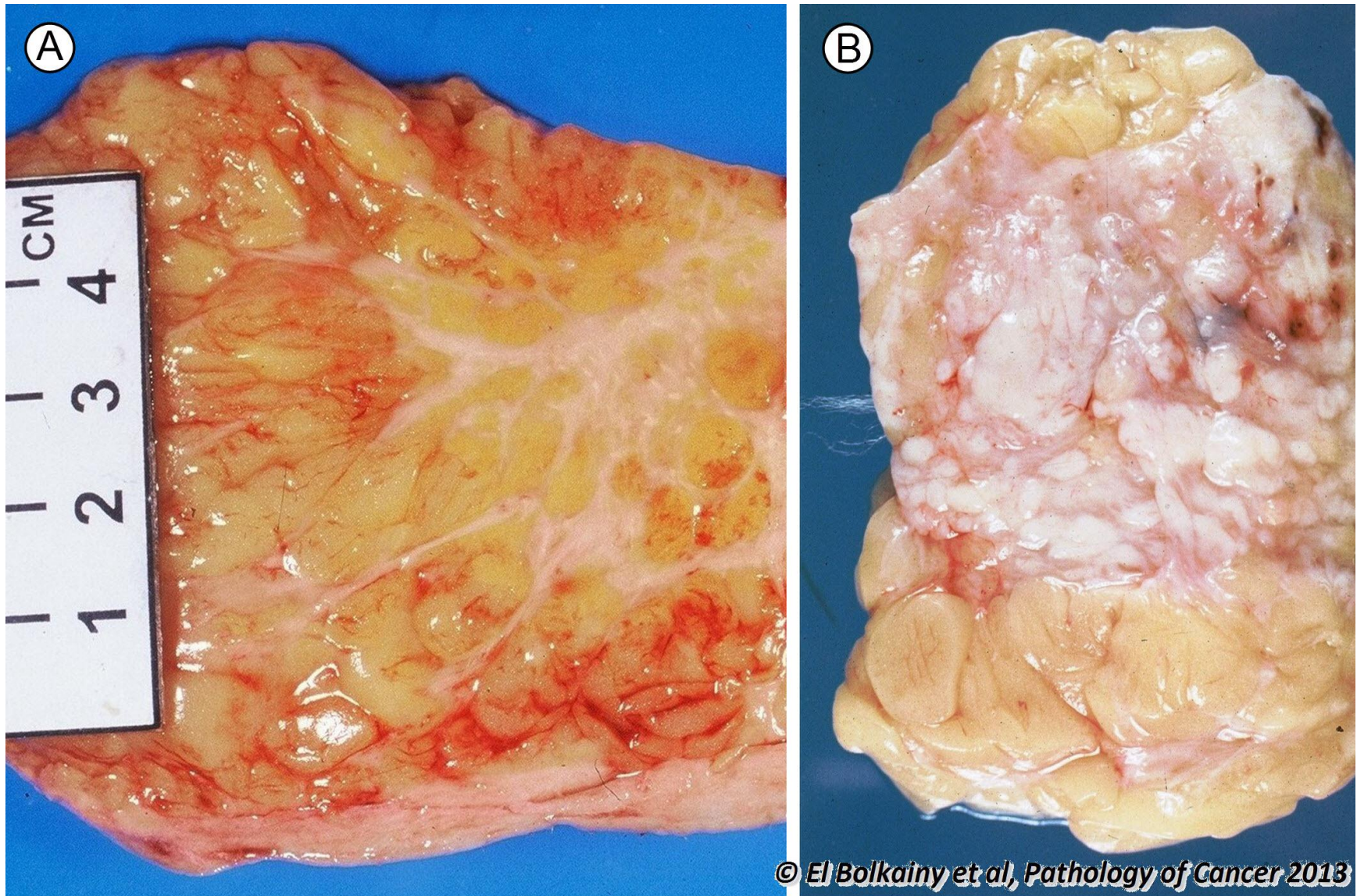
Picture 18-12 Gross appearance of invasive duct carcinoma. An irregular, fibrotic tumor infiltrates adipose tissue as well overlying skin.

18.13 Invasive duct carcinoma.



Picture 18-13 Invasive duct carcinoma. **A** Histology showing ductal differentiation. **B** Cytology of fine needle aspiration showing malignant clusters with large overlapping nuclei, angular pattern, and few separate cells with intact cytoplasm.

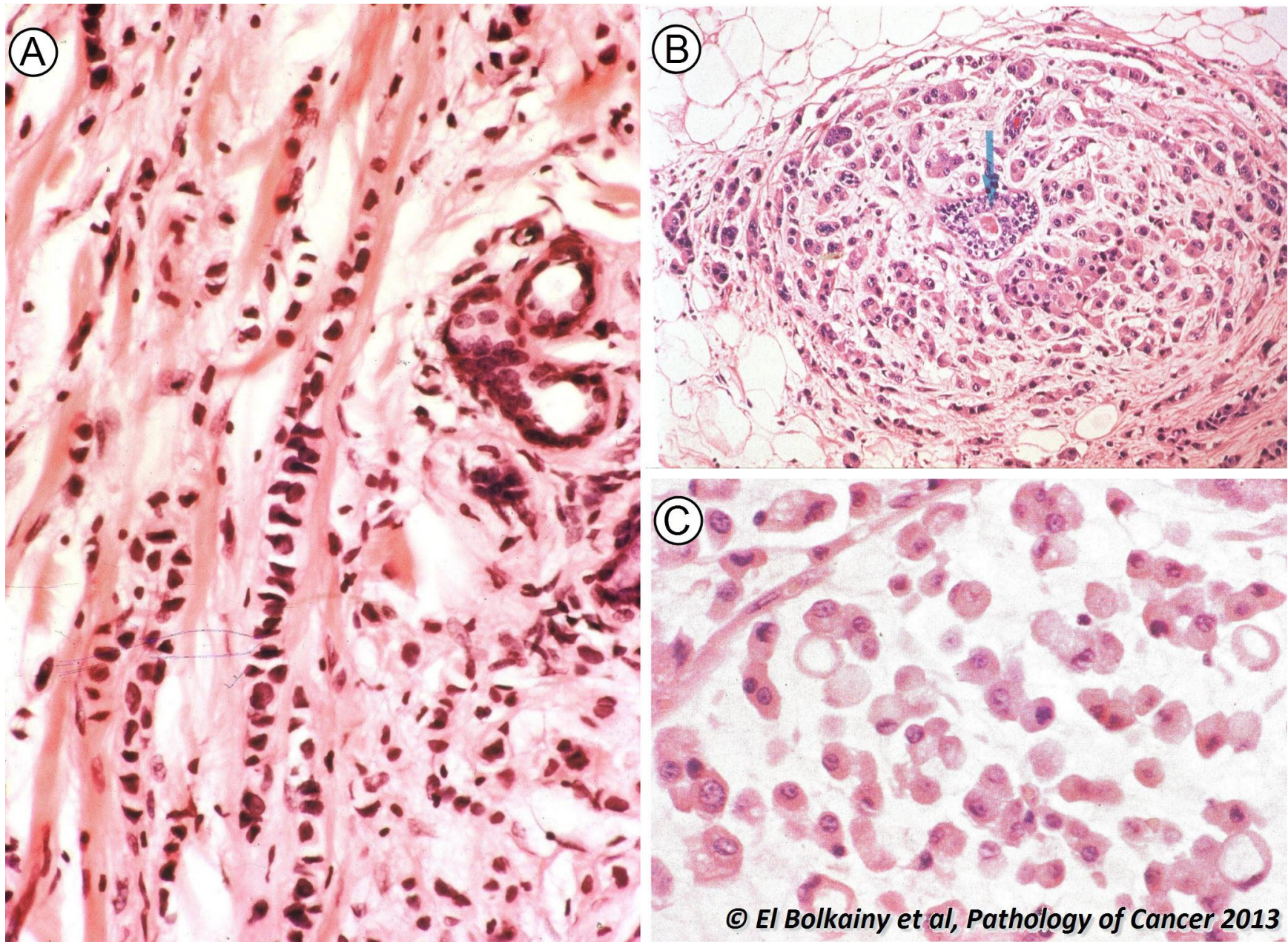
18.14 Gross feature of invasive lobular carcinoma.



Picture
18-14

Gross feature of invasive lobular carcinoma. Note multifocality and ill-defined tumor margins.

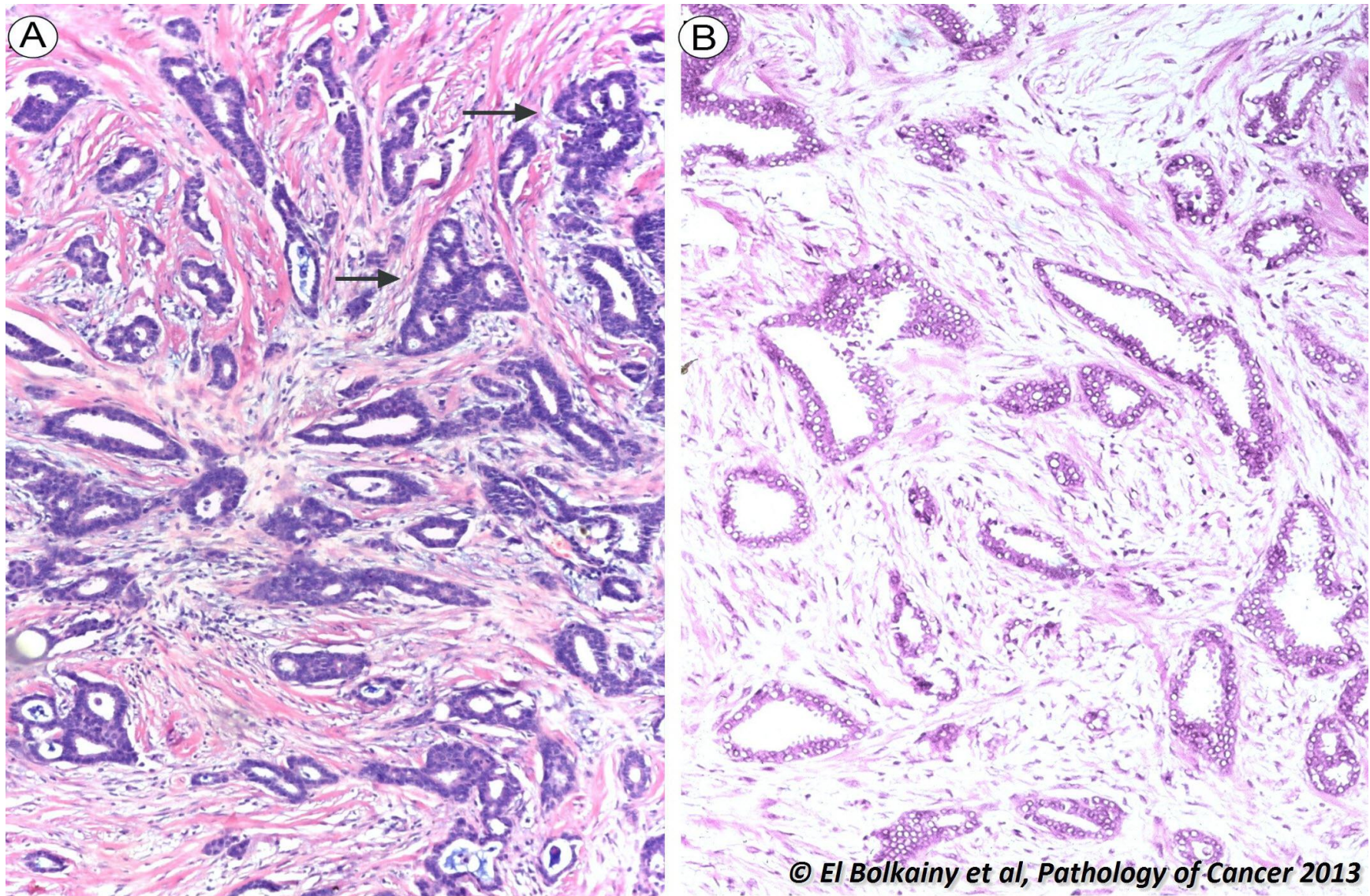
18.15 Histology of invasive lobular carcinoma.



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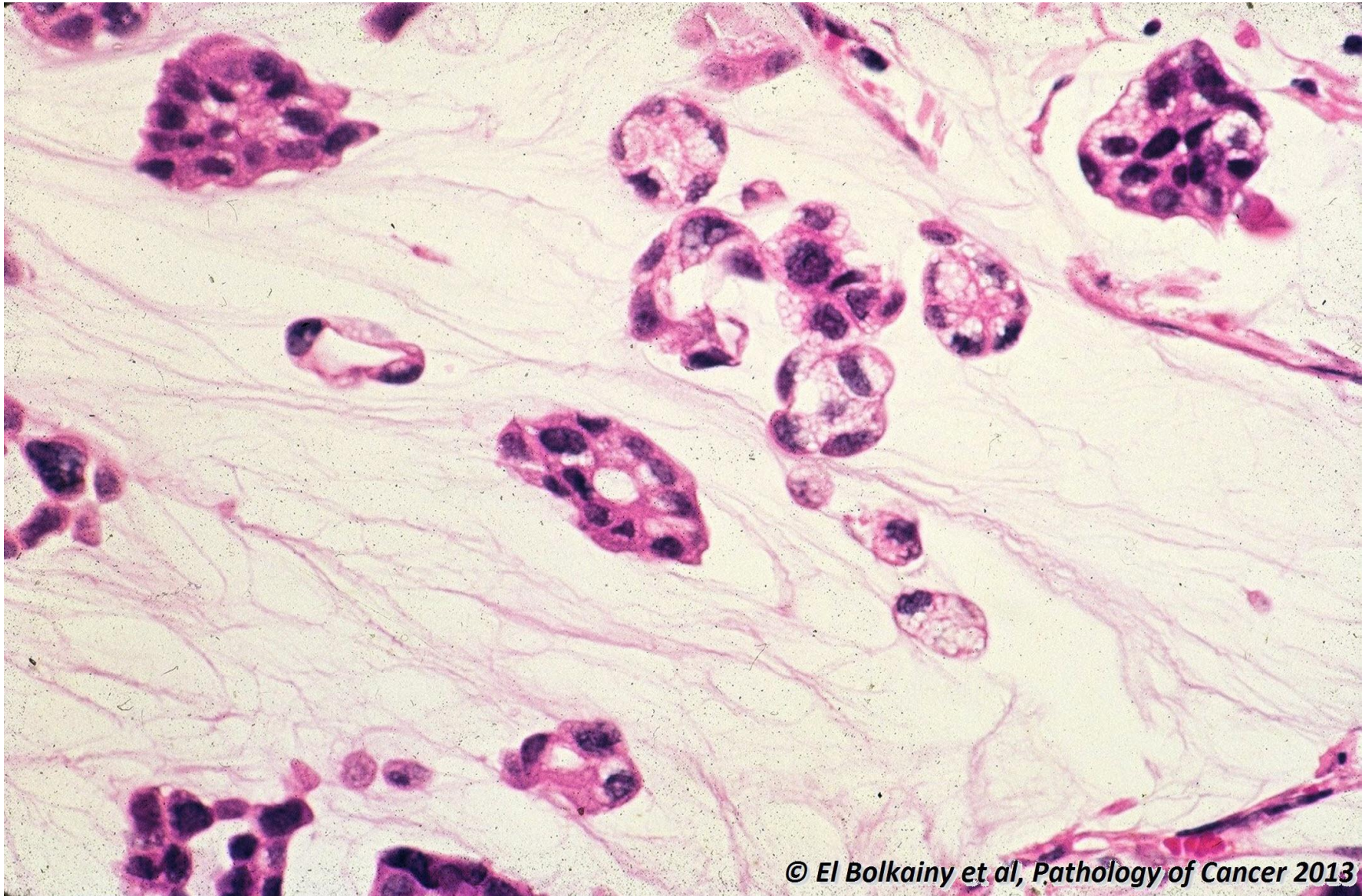
Picture 18-15 Histology of invasive lobular carcinoma. **A** The classic single cell linear pattern (Indian-file). **B** Targetoid pattern around a normal duct (arrow). **C** High power showing plasmacytoid features of tumor cells.

18.16 Histology of tubular carcinoma.



Picture 18-16 Histology of tubular carcinoma. **A** Low power showing the commonly associated cribriform carcinoma. **B** Tubular carcinoma has a characteristic pointed end of the neoplastic tubule (tear drop pattern) and desmoplastic stroma.

18.17 Histology of mucinous carcinoma.

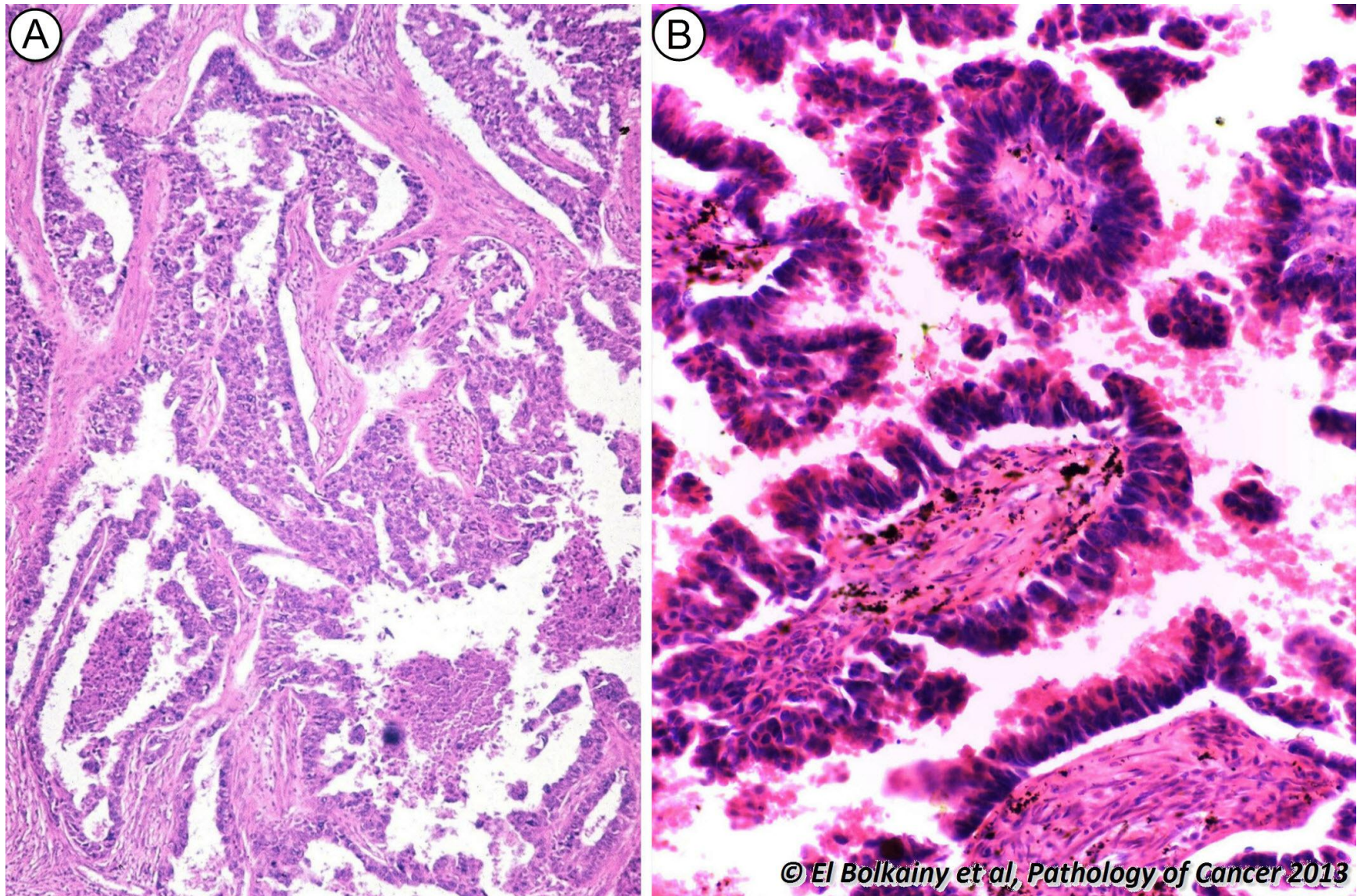


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Picture
18-17

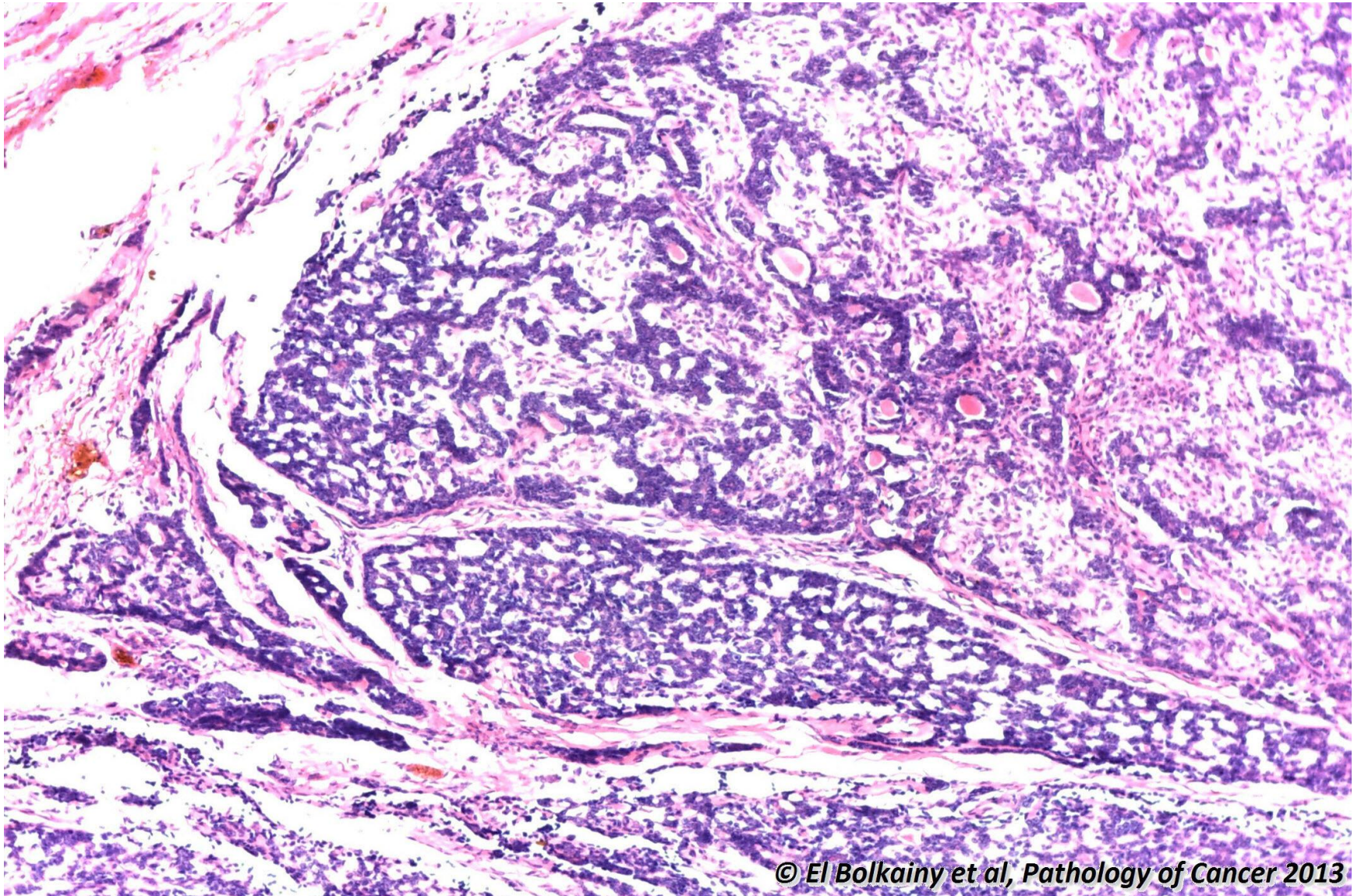
Histology of mucinous carcinoma. It shows monomorphic cells floating in lakes of mucin.

18.18 Histology of papillary carcinoma of breast.



Picture 18-18 Histology of papillary carcinoma of breast. **A** Low power. **B** High power. Malignant epithelium is stratified, pleomorphic and lacks a myoepithelial layer.

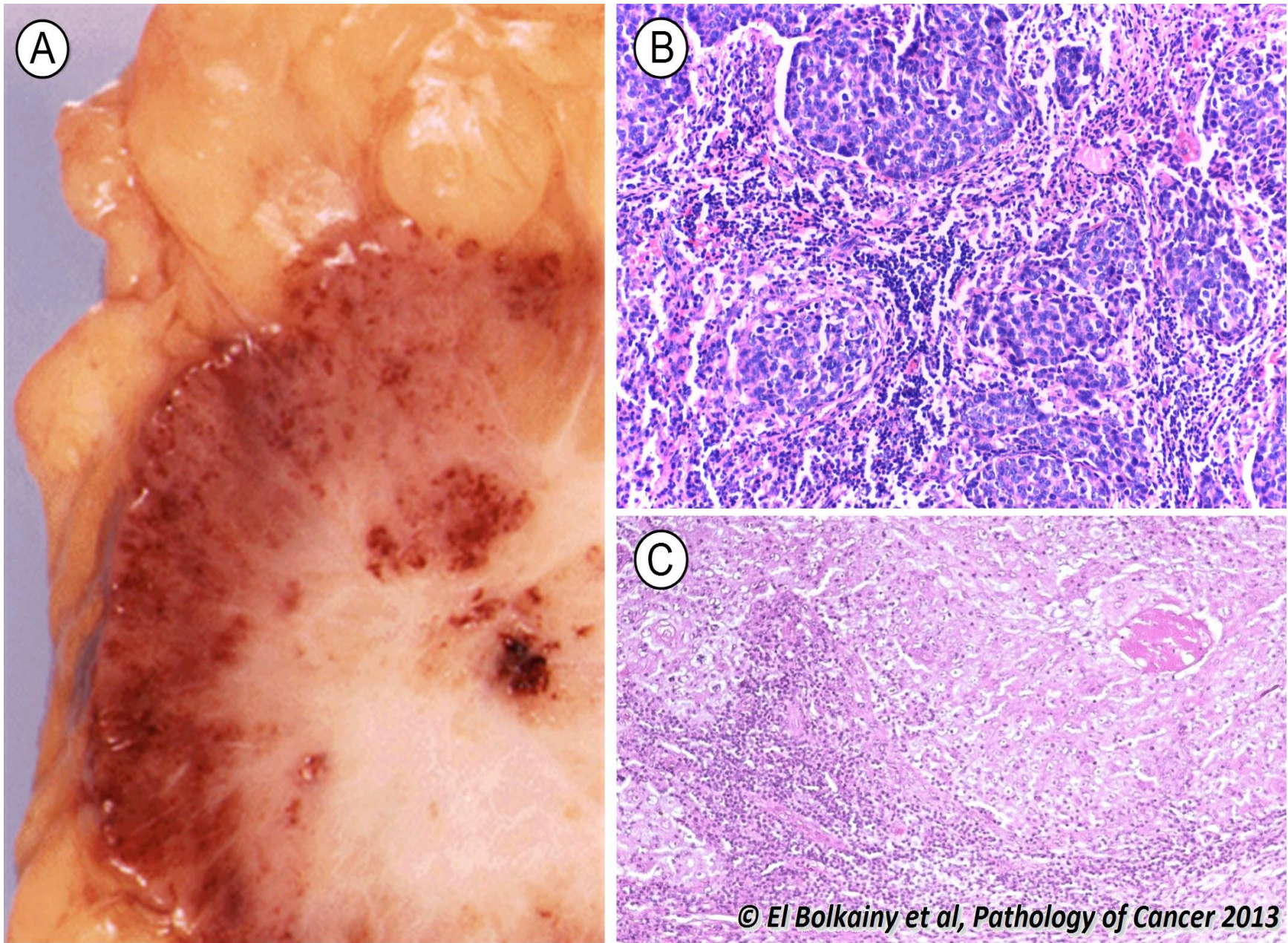
18.19 Adenoid cystic carcinoma.



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Picture 18-19 Adenoidcystic carcinoma. Note the characteristic cylindromatous pattern in which the gland-like structure are filled with eosinophilic basement membrane material.

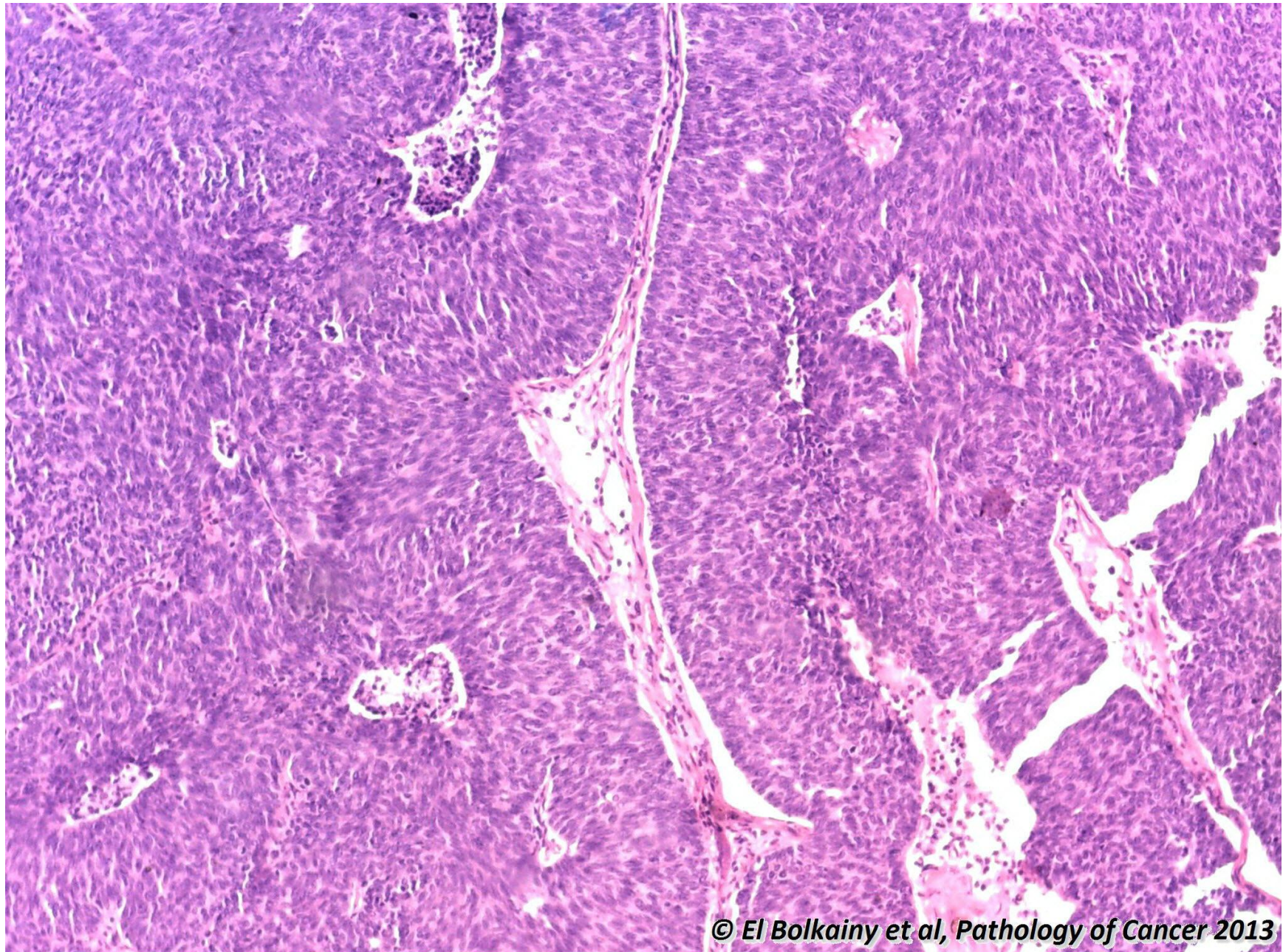
18.20 Medullary carcinoma.



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Picture 18-20 Medullary carcinoma. **A** Grossly, It is characterized by a circumscribed pushing margin and rounded appearance. **B** and **C** Histopathology is characterized by abundant lymphocytes in stroma, solid tumor pattern, with syncytial cytoplasm.

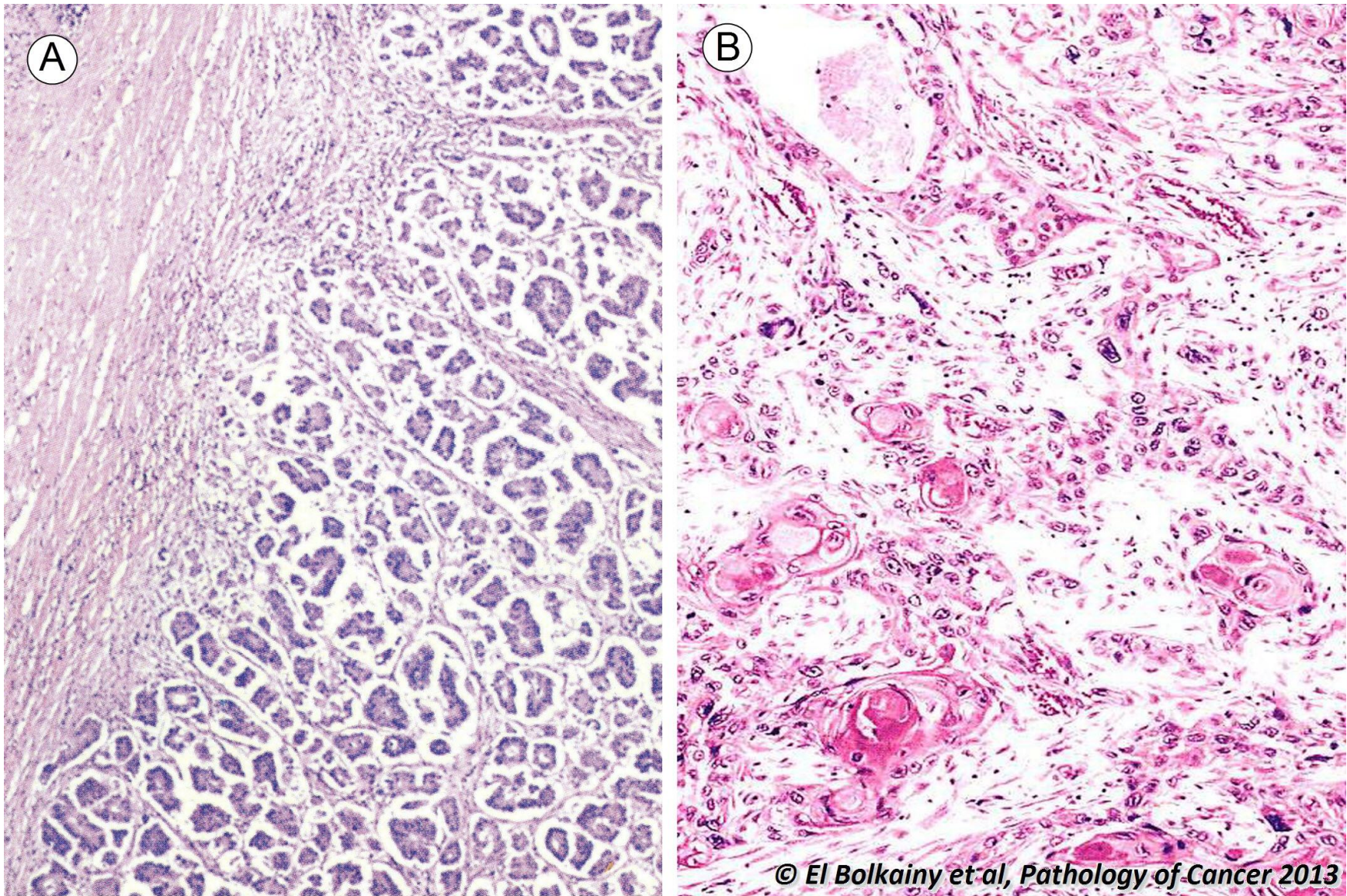
18.21 So-called Atypical medullary carcinoma.



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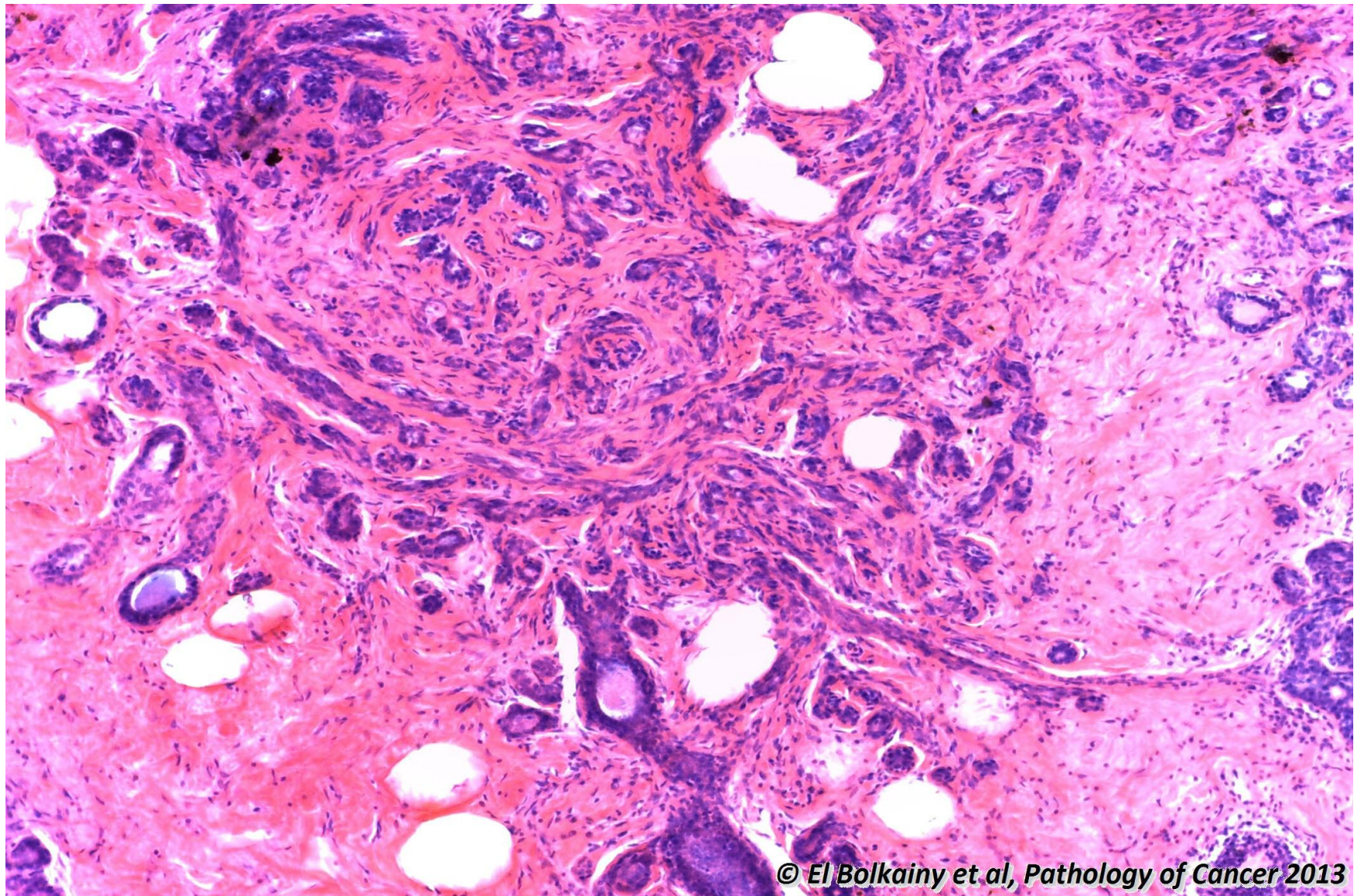
Picture 18-21 So-called **Atypical medullary carcinoma**. This tumor showed general features of medullary except for the lack of abundant lymphocytic infiltrate in tumor stroma. The prognosis of this subtype is unfavorable, hence it is better to be classified as invasive duct carcinoma, grade 3.

18.22 Aggressive variants of duct carcinoma.



Picture 18-22 Aggressive variants of duct carcinoma. **A** Micropapillary carcinoma, small groups of malignant cells invading the stroma with retraction artifacts. **B** Metaplastic carcinoma, showing squamous metaplasia of ductal epithelium. Such variant may also show mesenchymal metaplasia of the stroma in the form of bone, cartilage or muscle.

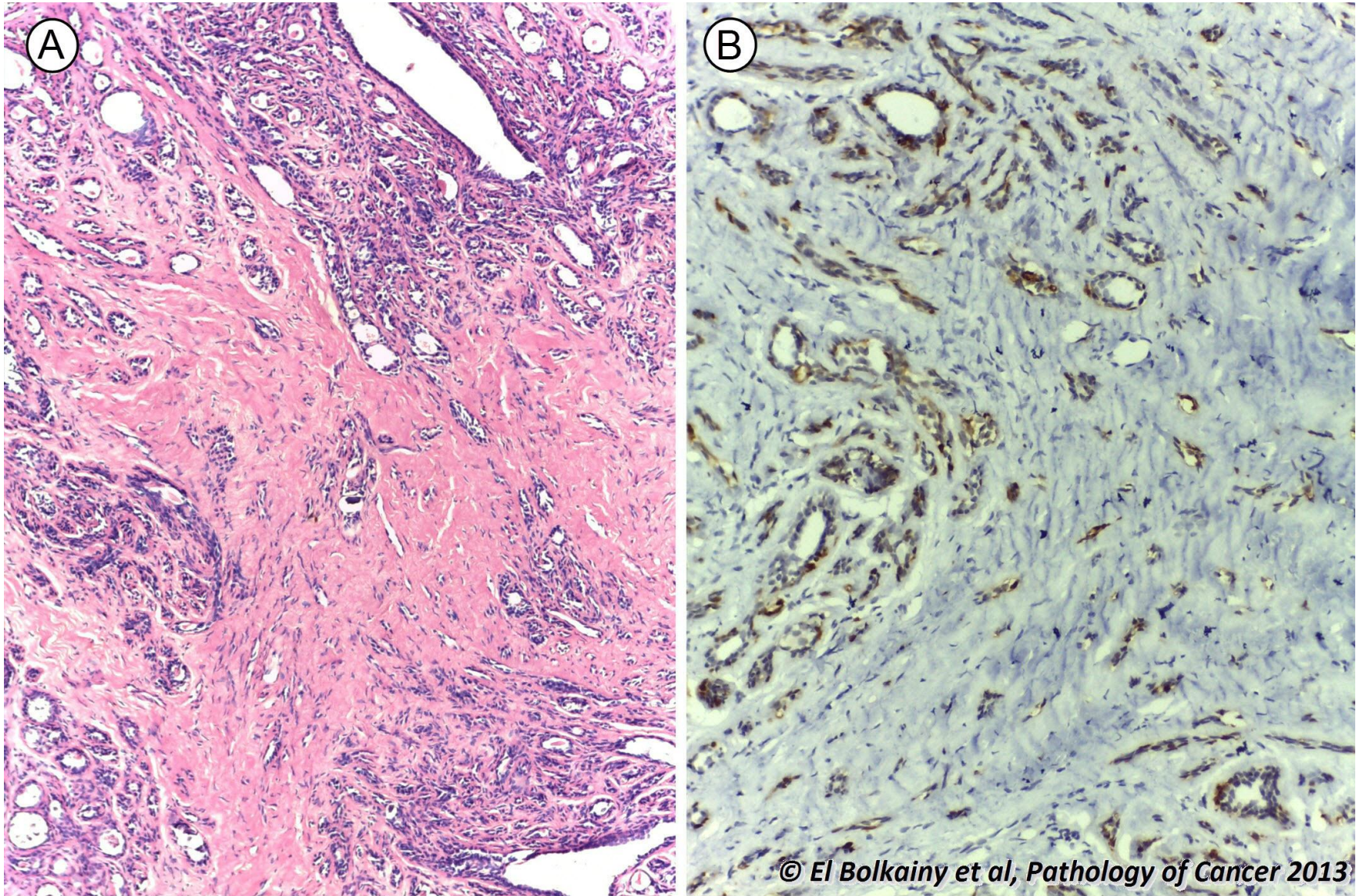
18.23 Sclerosing adenosis.



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Picture 18-23 Sclerosing adenosis. There is marked distortion of the terminal duct lobular units by stromal fibrosis. Contrary to malignancy, there is preserved lobular pattern and ductules containing myoepithelial cells, well demonstrated by immunohistochemistry (S-100, Actin).

18.24 Radial scar.

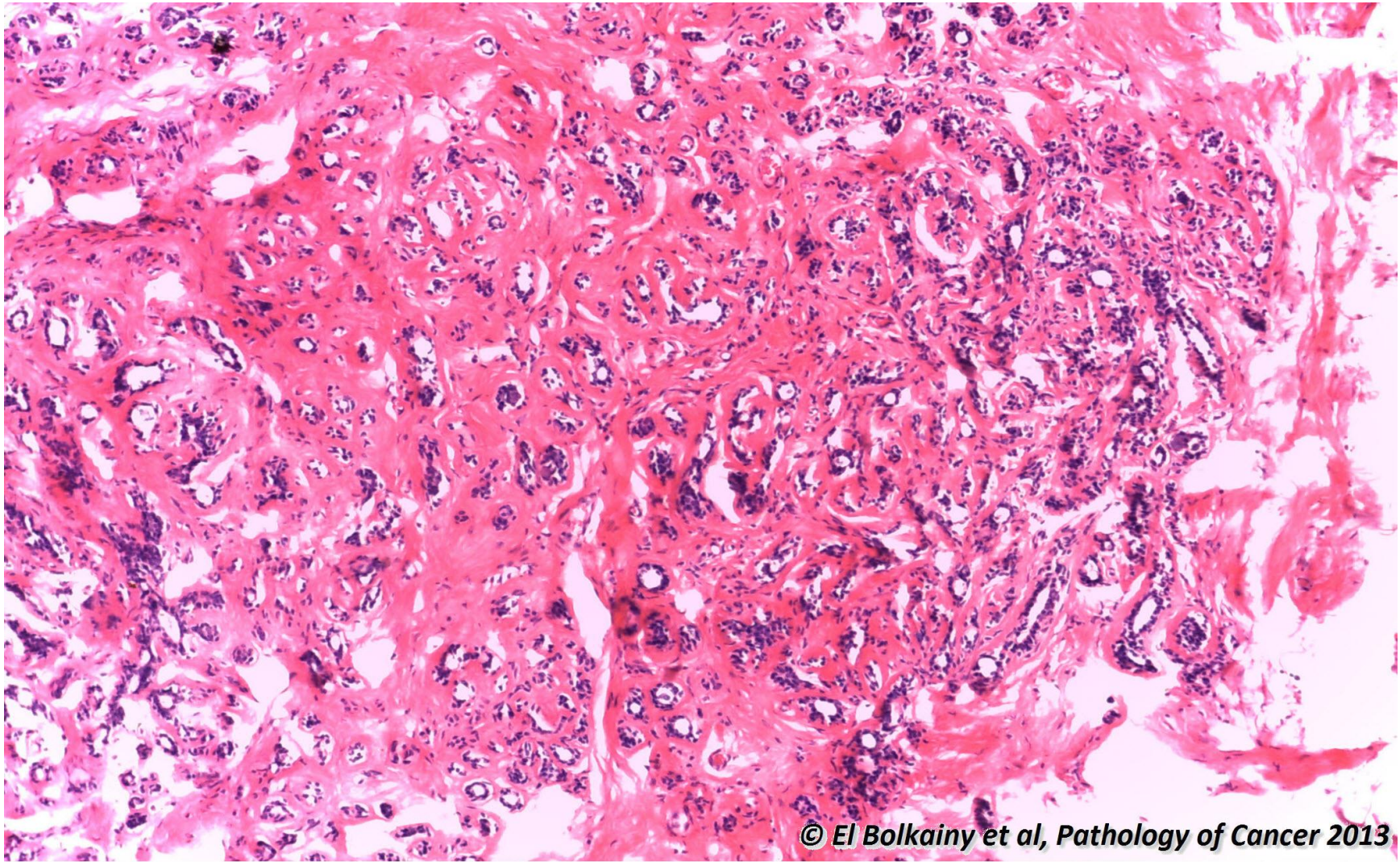


Picture
18-24

Radial scar. **A** The distortion of ducts by stromal fibrosis simulates a malignant tumor. **B** The presence of myoepithelial cells (positive S-100) is the main feature that distinguishes radial scar from invasive duct carcinoma.

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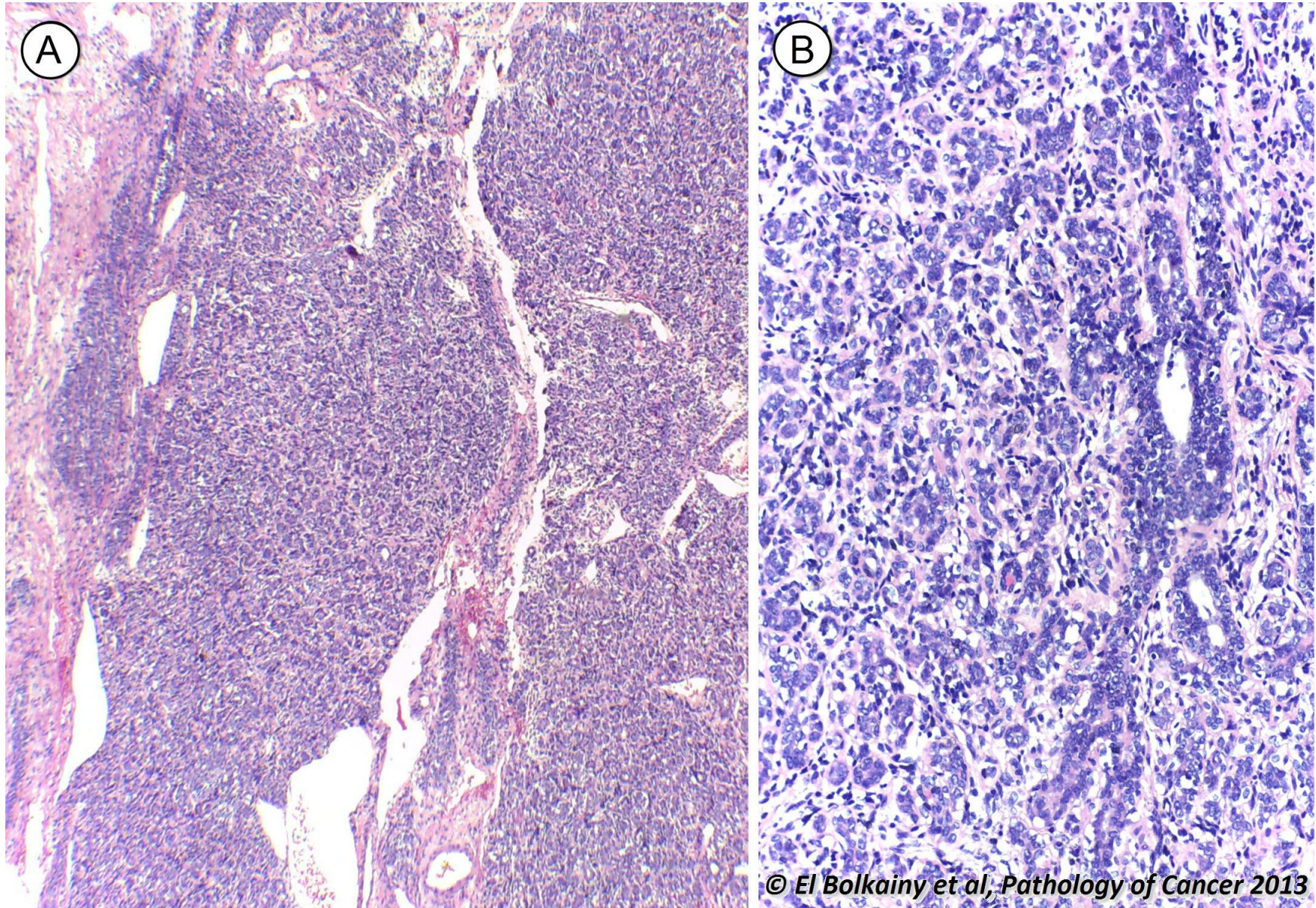
18.25 Microglandular adenosis.



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Picture 18-25 **Microglandular adenosis.** Similar to malignancy, the tubules lack a myoepithelial layer, but are characterized by extremely small size, single layer of cuboidal bland cells, and with dissociated pattern.

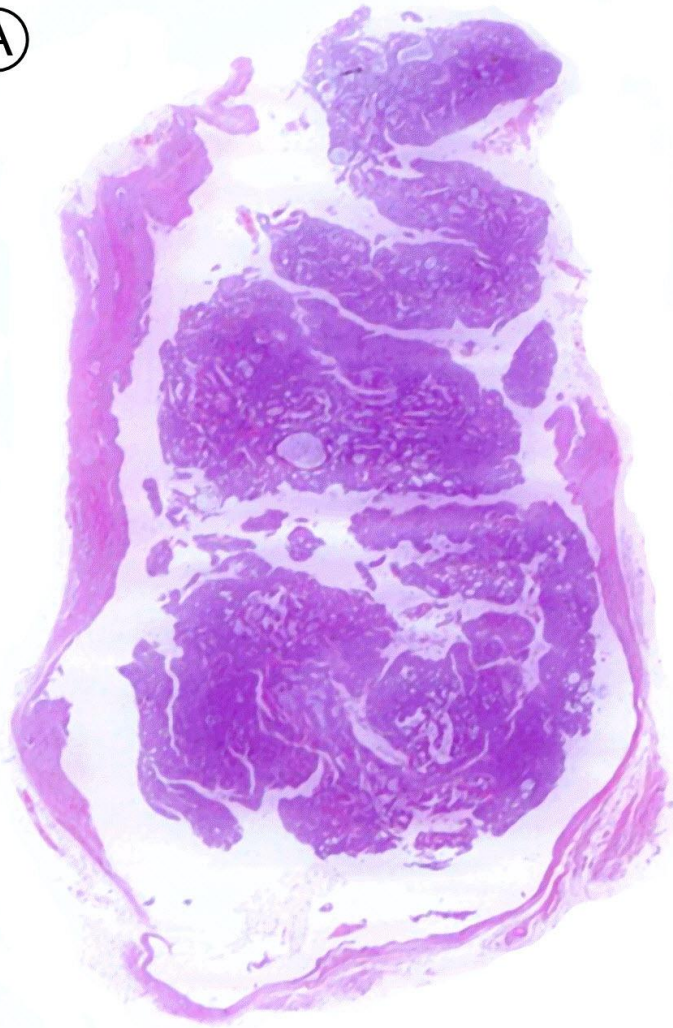
18.26 Tubular adenoma.



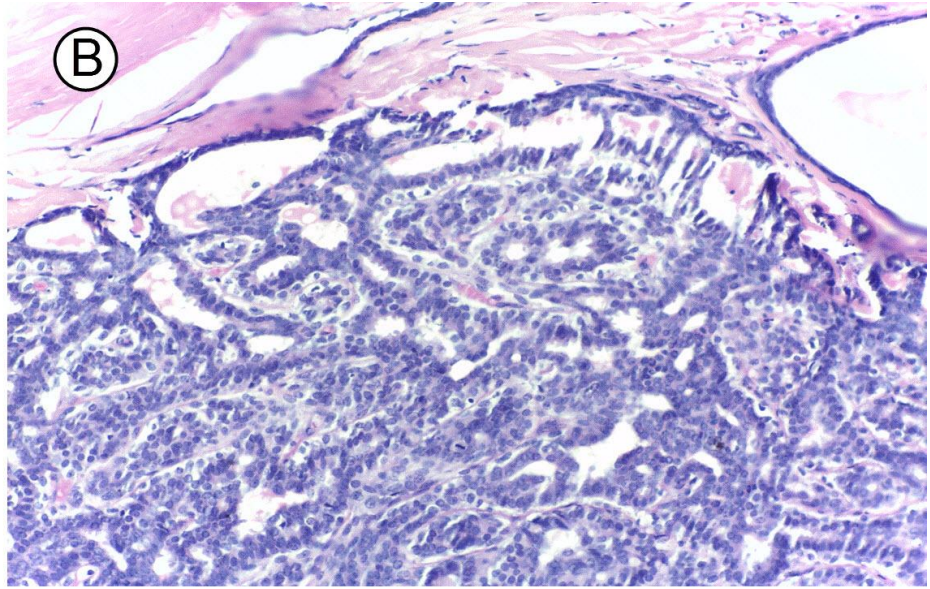
Picture 18-26 Tubular adenoma. **A** By low power, there is marked hypercellularity since the proliferating ductules are not associated with stroma. However, a preserved lobular pattern denotes a benign tumor. **B** High power showing bland cells with characteristic arrangement of small ducts around large ducts, both features are against malignancy.

18.27 Intraduct papilloma

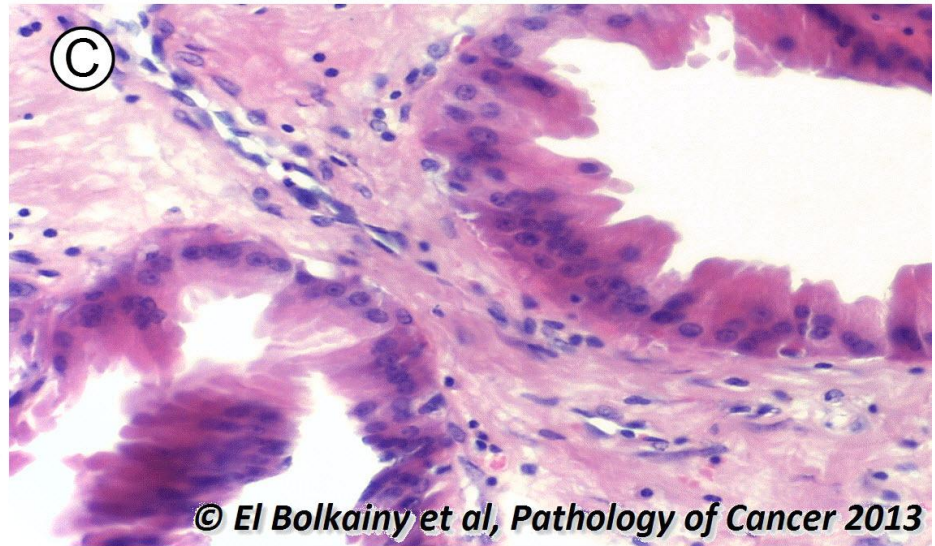
(A)



(B)



(C)

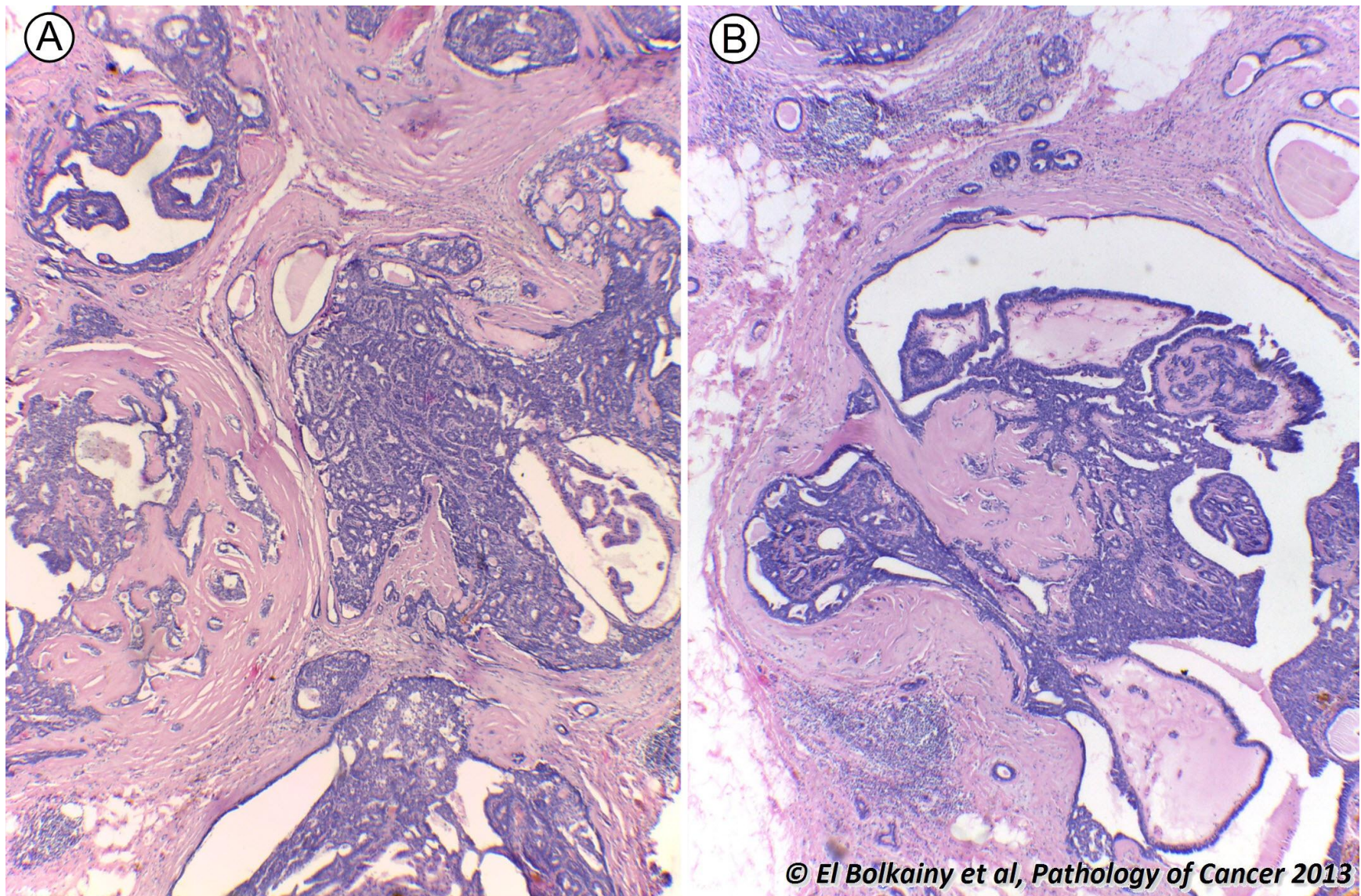


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**Picture
18-27**

Intraduct papilloma. A Computer scan (X5) showing lack of invasion of duct wall. B A papilloma has a double cell layer epithelial and myoepithelium, the latter is positive for actin and S-100. C Cytoplasmic eosinophilia (apocrine metaplasia) favors a papilloma rather than a carcinoma.

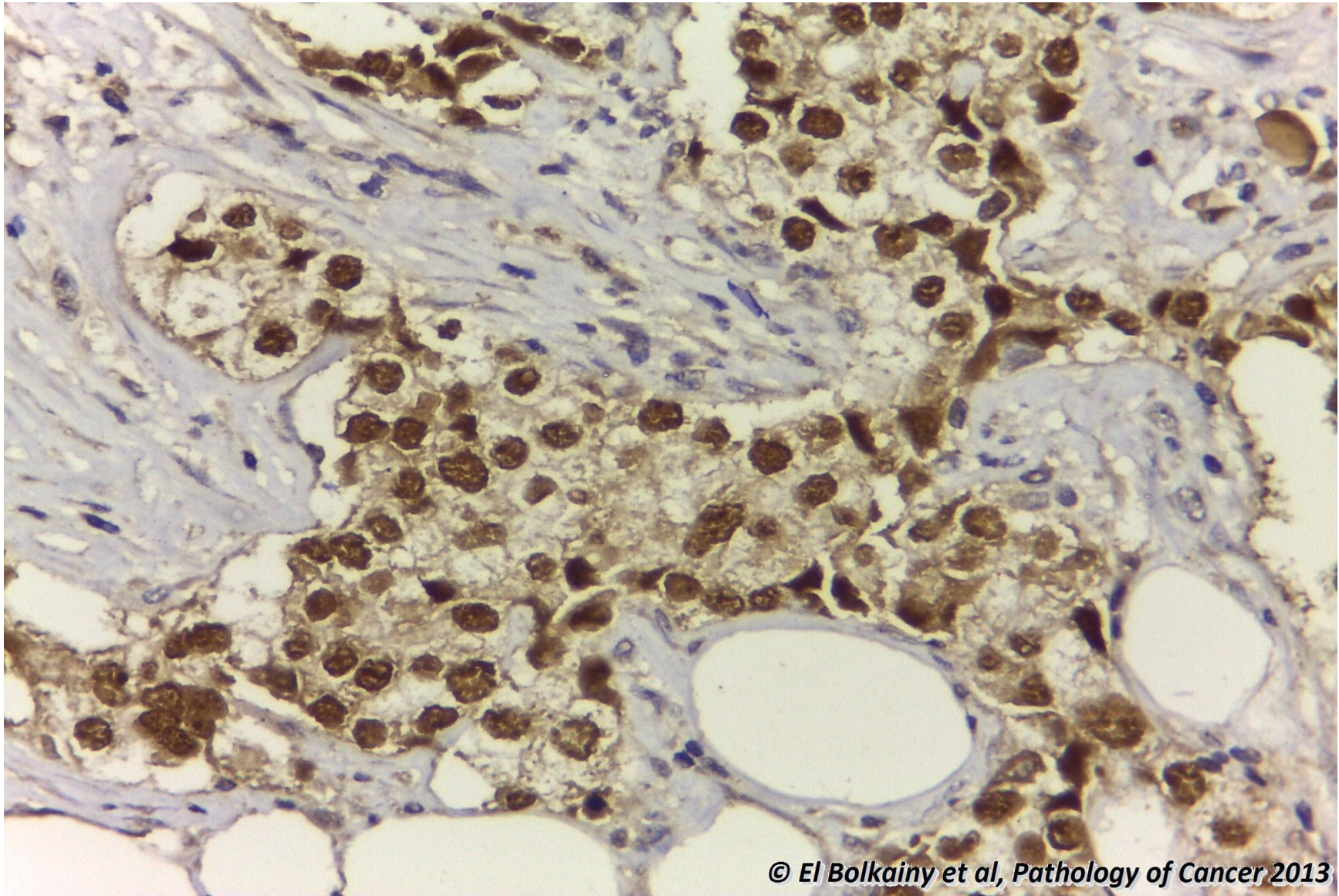
18.28 Healing papillomas of terminal lactiferous ducts.



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Picture 18-28 Healing papillomas of terminal lactiferous ducts. A pseudoinvasive pattern is created by marked fibrosis by tumor which may be mistaken for malignancy. Its benign nature is verified by the presence of a myoepithelial layer. A Low power. B High power.

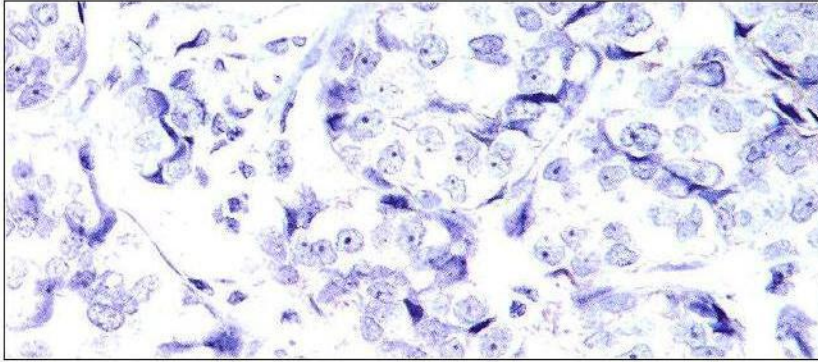
18.29 ER positive reaction in invasive duct carcinoma.



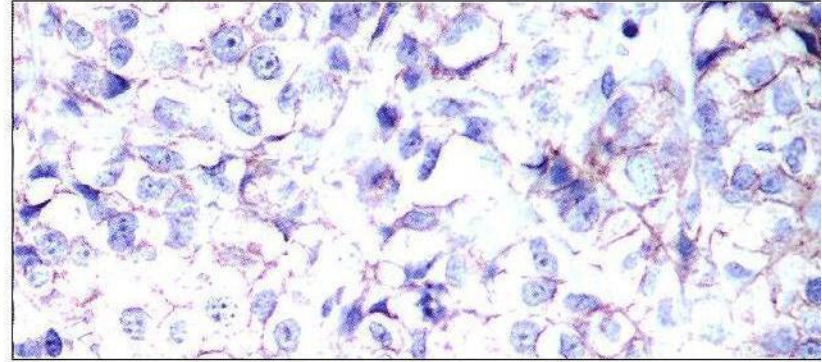
Picture 18-29 ER positive reaction in invasive duct carcinoma. Note the nuclear location of the immunoreactivity which is evident in almost all tumor cell population. However immunoreactivity in more than 1% is considered positive.

18.30 Her-2 scoring system for breast carcinoma.

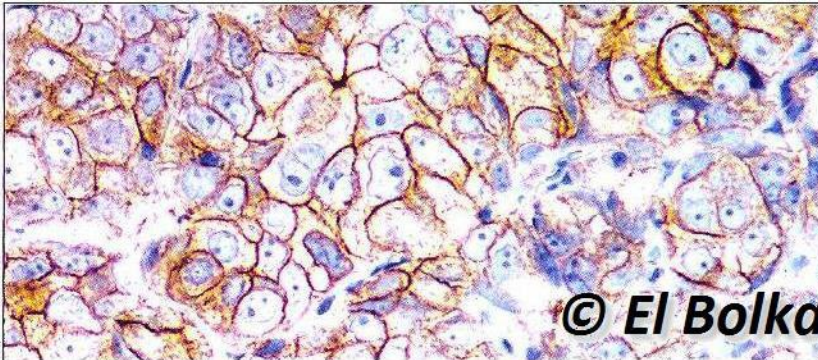
Score: 0 (40x)



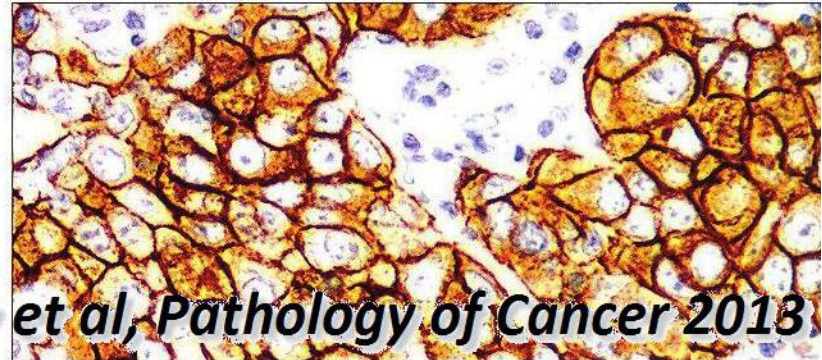
Score: 1+ (40x)



Score: 2+ (40x)



Score: 3+ (40x)

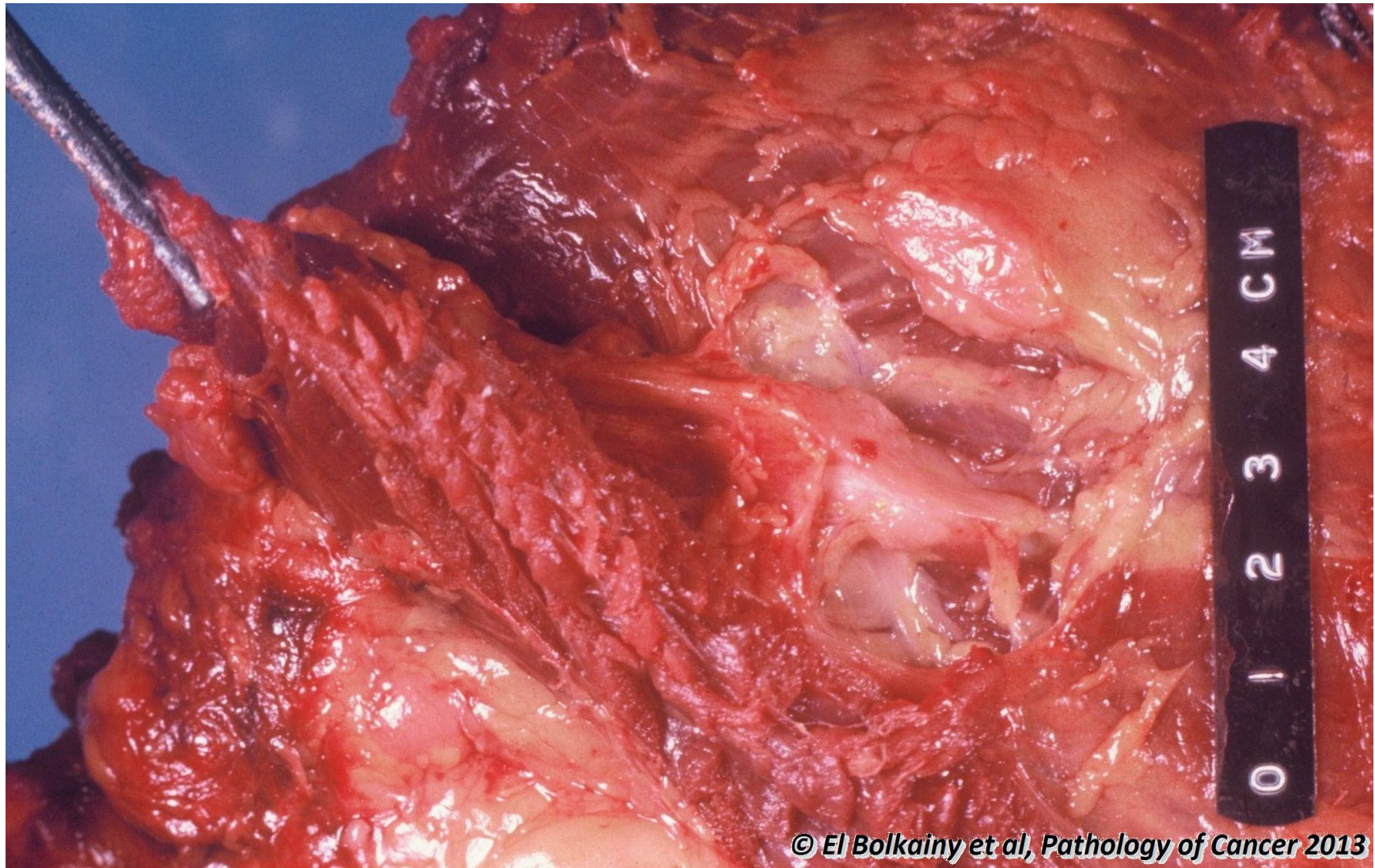


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**Picture
18-30**

Her-2 scoring system for breast carcinoma. Note the membranous immunoreactivity of increasing intensity. Scores 0 and 1 are considered negative, score 3 is positive and score 2 is equivocal, and needs confirmation by genetic analysis by FISH technique.

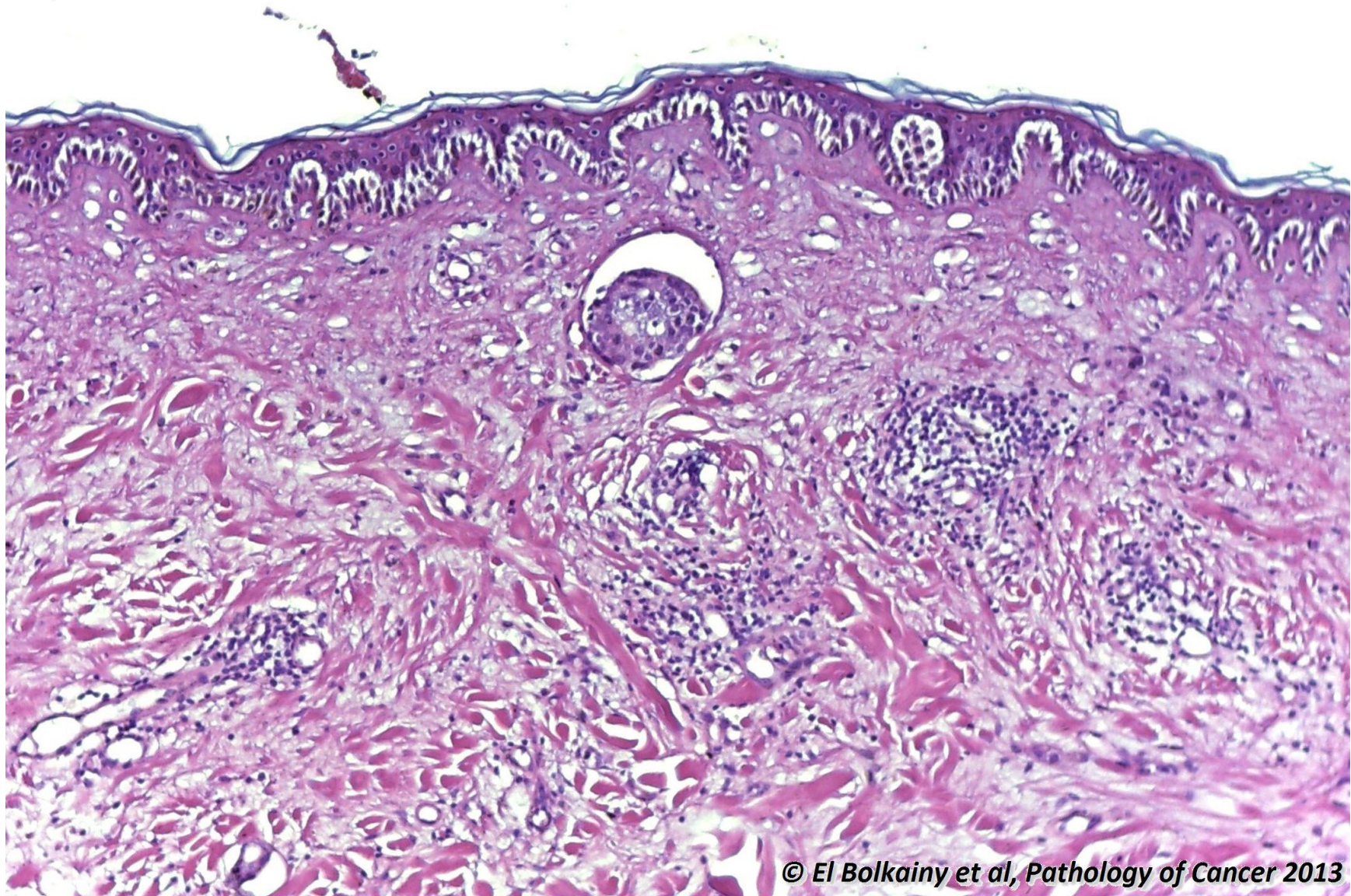
18.31 Interpectoral (Rotter) lymph node.



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Picture 18-31 Interpectoral (Rotter) lymph node. It is located between the pectoralis major and minor muscles.

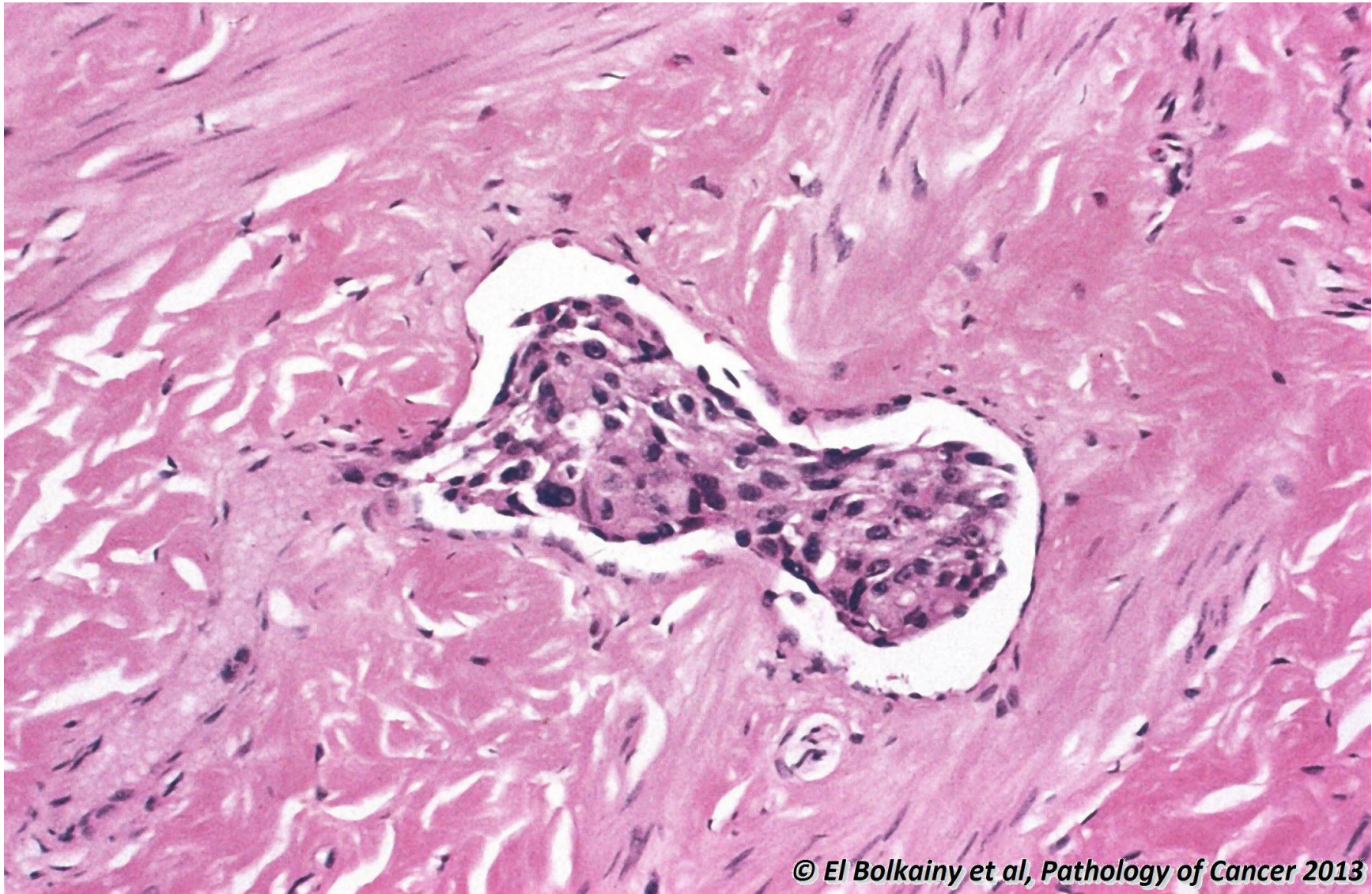
18.32 Inflammatory breast cancer.



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Picture 18-32 Inflammatory breast cancer. This is a clinical presentation rather than a distinct histologic type, presenting as red skin patch simulating erysipelas. It results from malignant permeation of cutaneous lymphatics with lymph obstruction and associated inflammatory reaction.

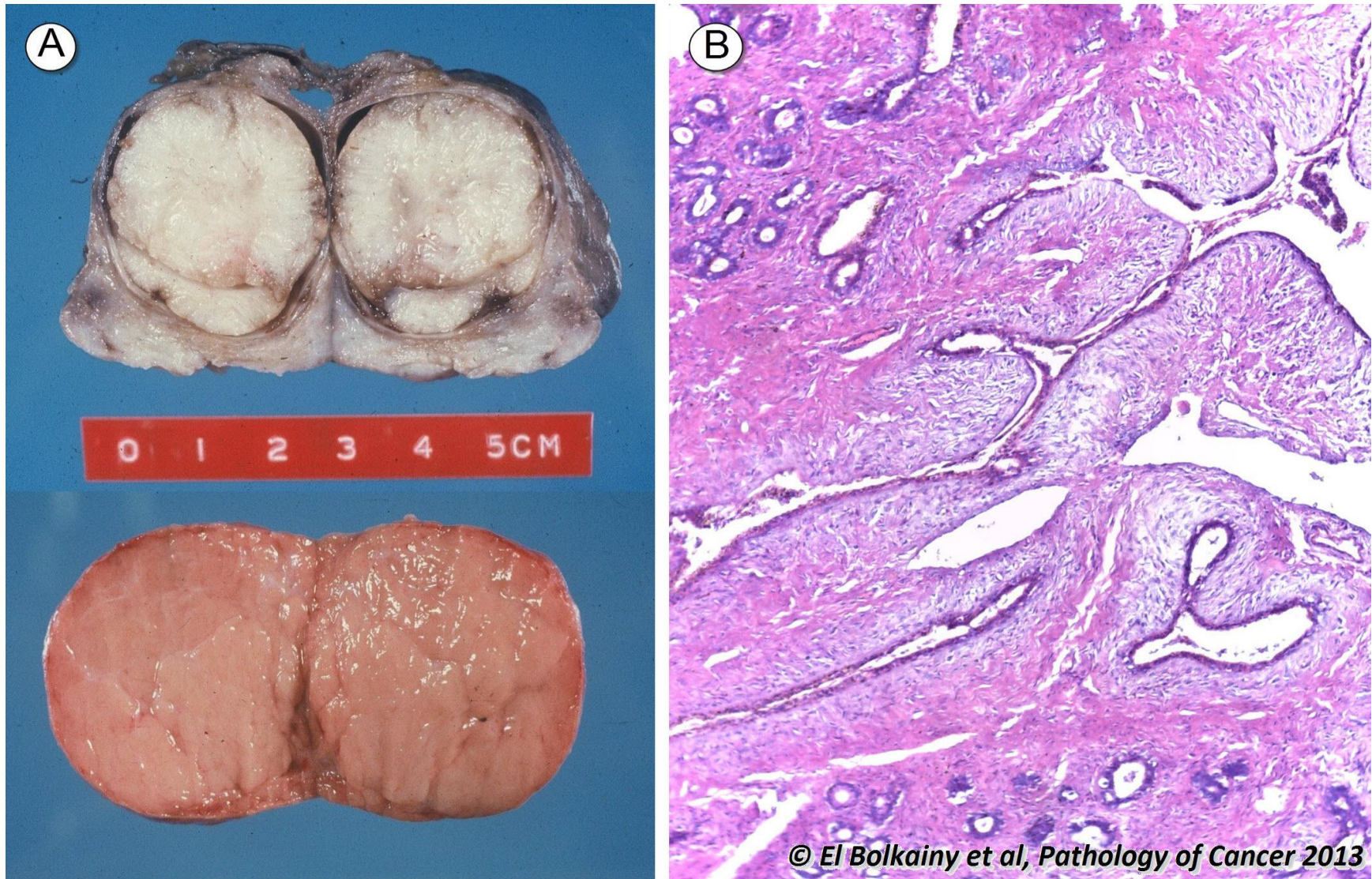
18.33 Angioinvasion of breast carcinoma.



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Picture 18-33 Angioinvasion of breast carcinoma. Invasion of lymphatics or venules around the growing margin of the tumor is an unfavorable prognostic finding. it is particularly important to evaluate in lymph node negative patients.

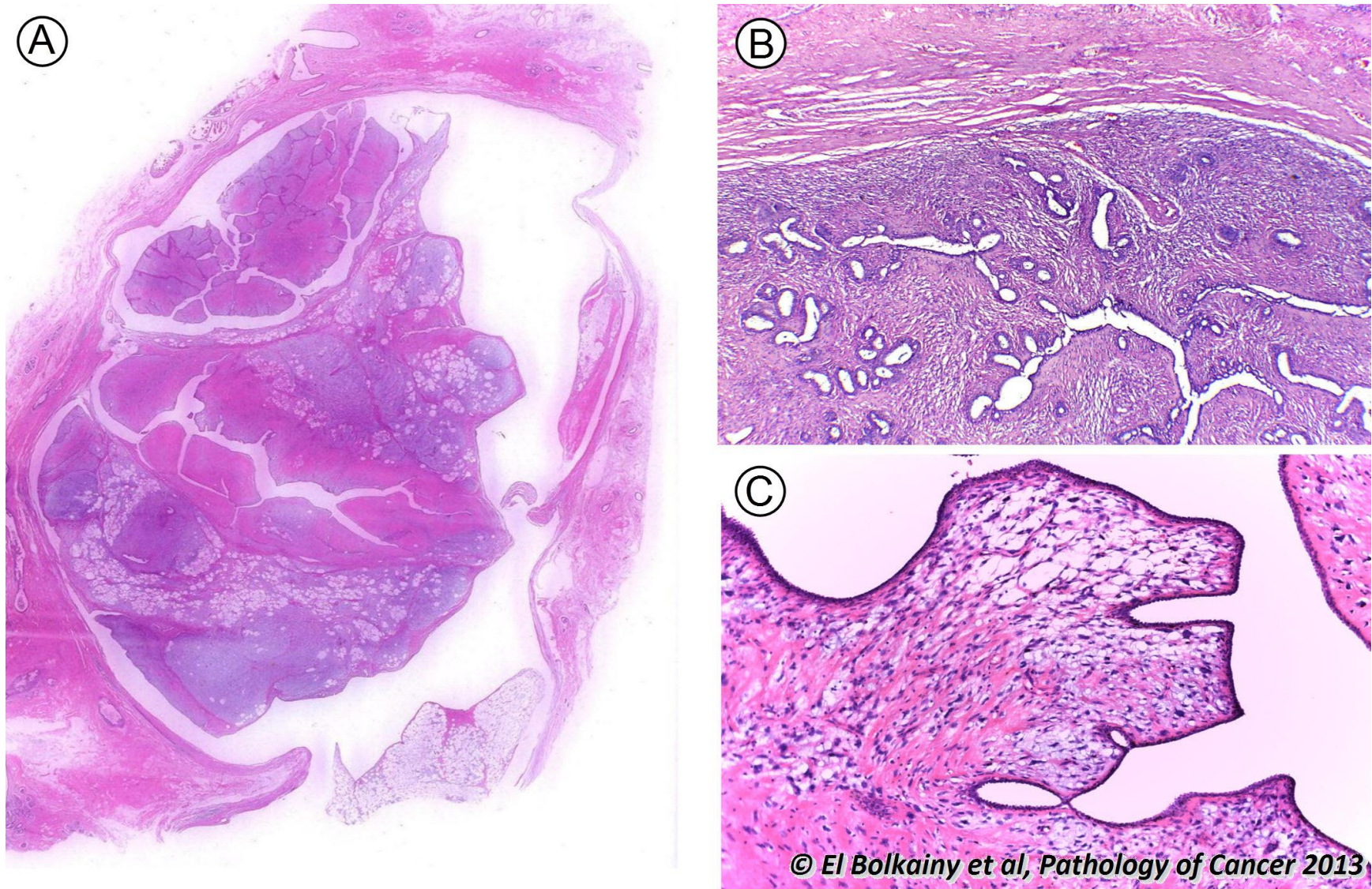
18.34 Cellular fibroadenoma.



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Picture 18-34 Cellular fibroadenoma. **A** Grossly, it is well encapsulated and solid, lacking any slits or cystic spaces. **B** Characteristic histology includes: an intracanalicular pattern with distinct periductal specialized stroma (bluish color) and ordinary stroma (red color), rare mitosis (less than 2%) and consistency of pattern in different parts of the tumor is characteristic of cellular fibroadenoma.

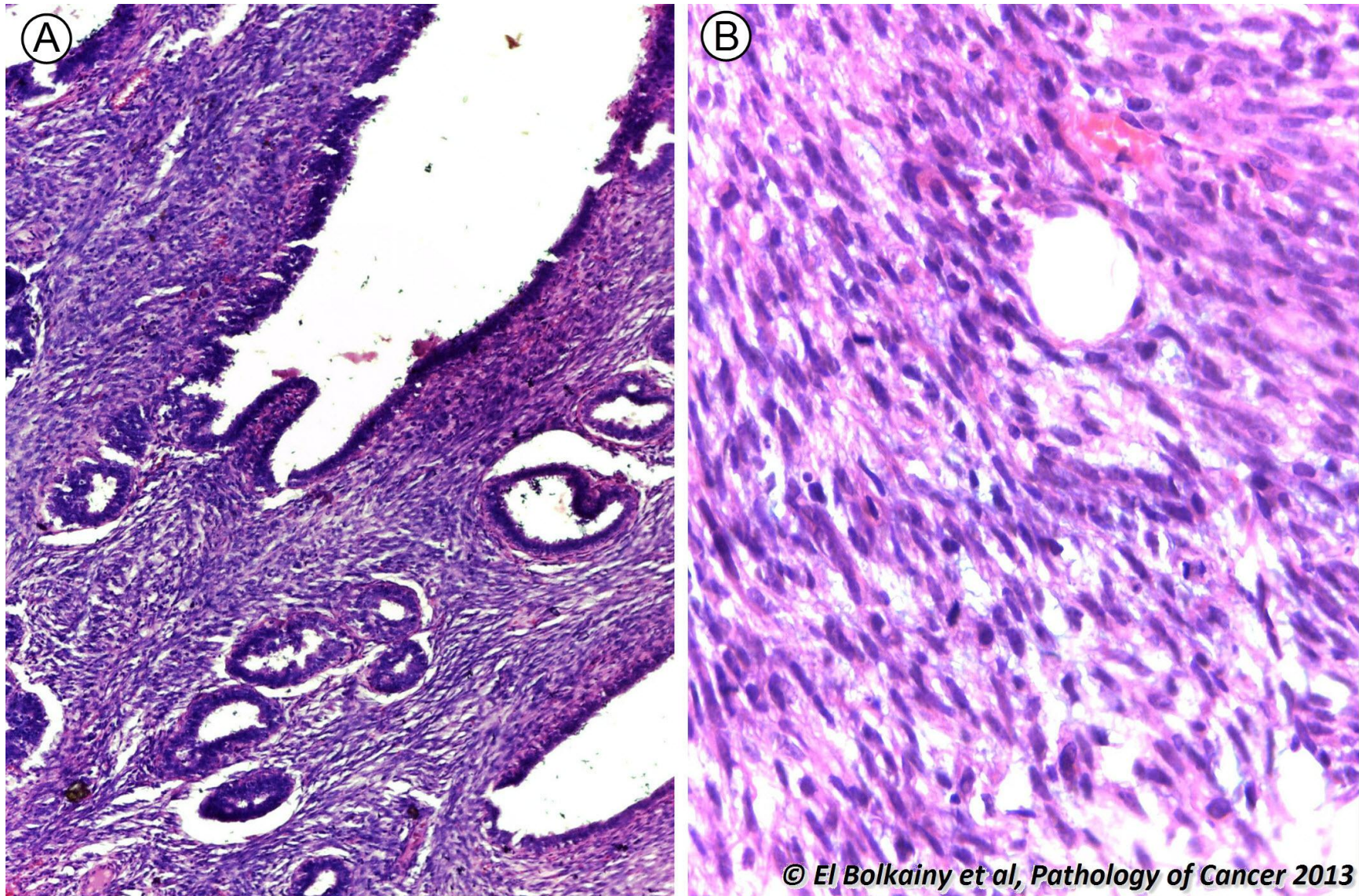
18.35 Phyllodes tumor, low grade.



Picture 18-35 Phyllodes tumor, low grade. **A** Computer scan (X5) showing cystic spaces and marked variation of stromal / epithelial ratio in different parts of the tumor. **B** and **C** Note moderate stromal hypercellularity and mitotic activity (2-10%).

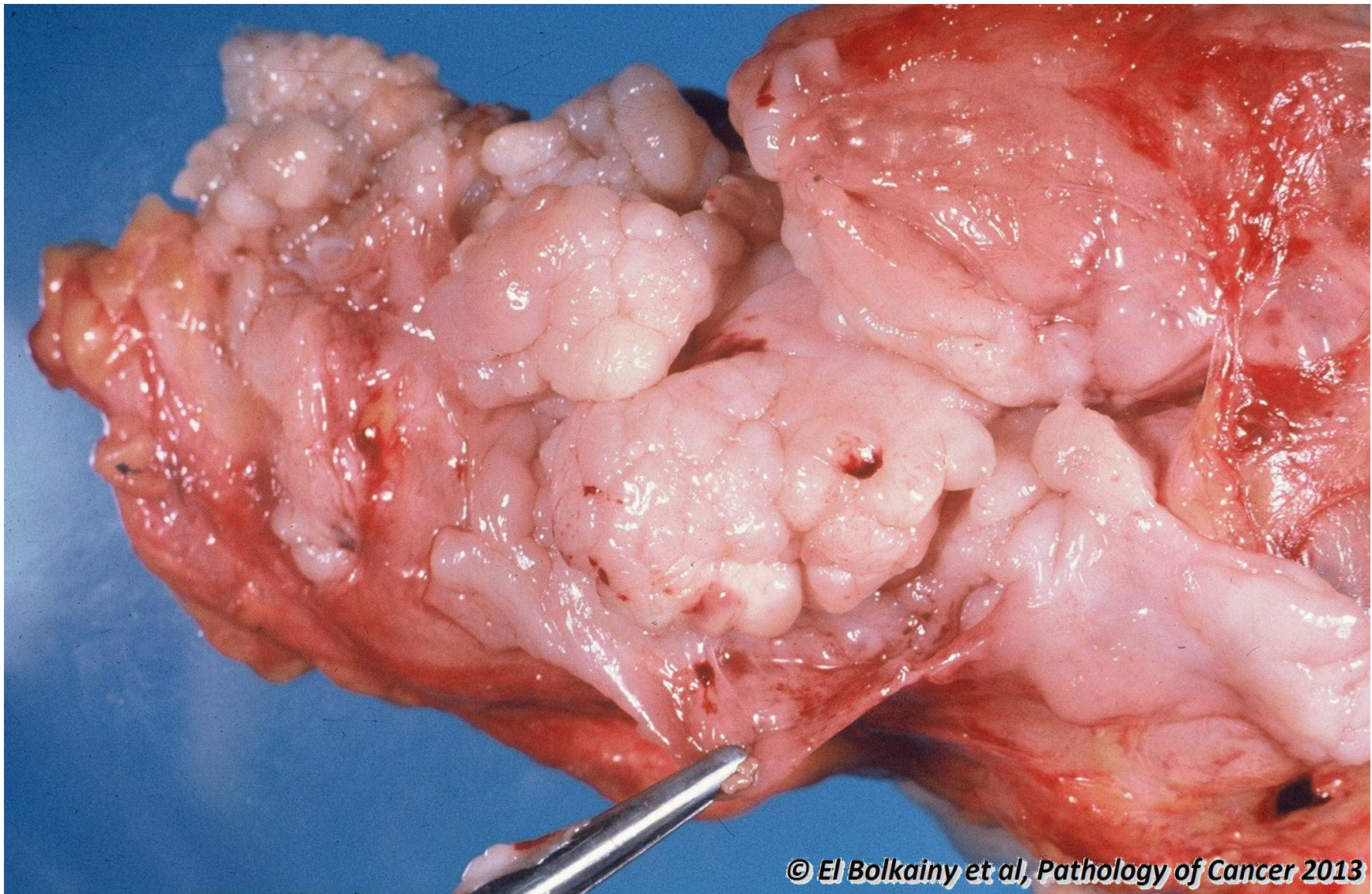
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18.36 Histology of phyllodes tumor, high grade.



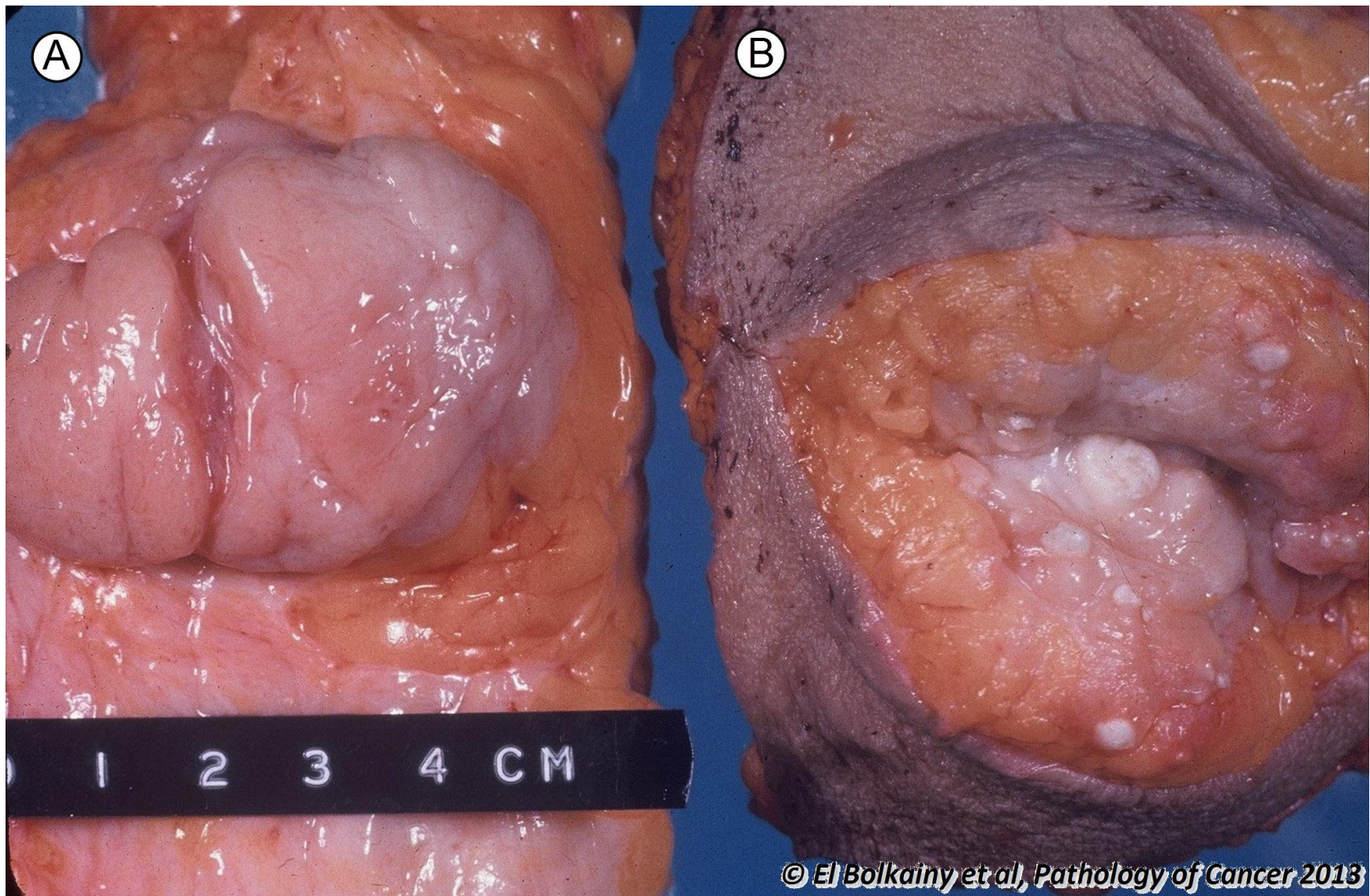
Picture 18-36 Histology of phyllodes tumor, high grade. **A** Marked stromal hypercellularity with anaplasia, associated with focal epithelial hyperplasia. **B** High mitotic activity (more than 10% of tumor stromal cells).

18.37 Gross appearance of Phyllodes tumor at initial presentation.



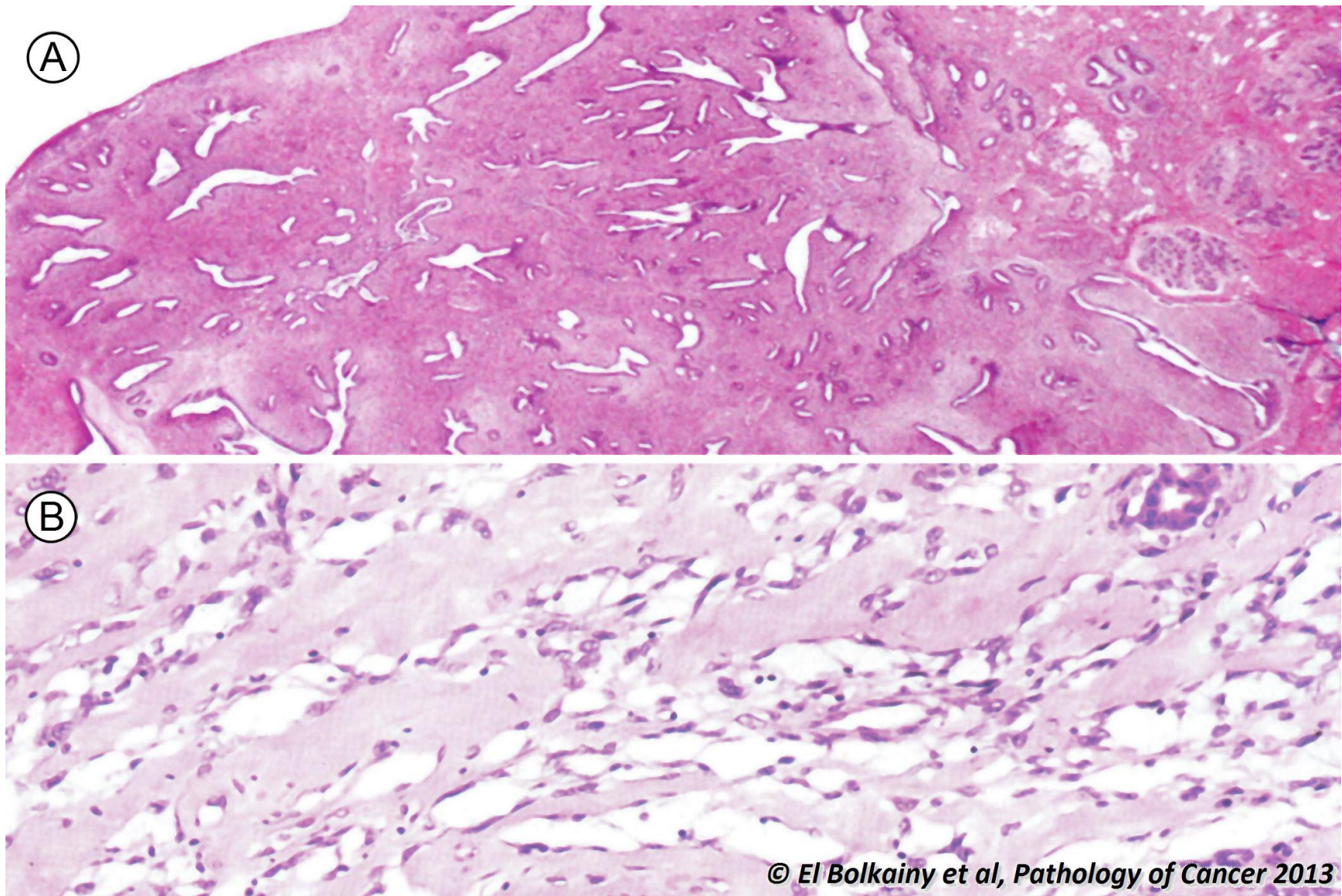
Picture Gross appearance of Phyllodes tumor at initial presentation. Note slit-like and cystic spaces with
18-37 projecting multinodular tumor nodules.

18.38 Gross appearance of recurrent phyllodes tumor.



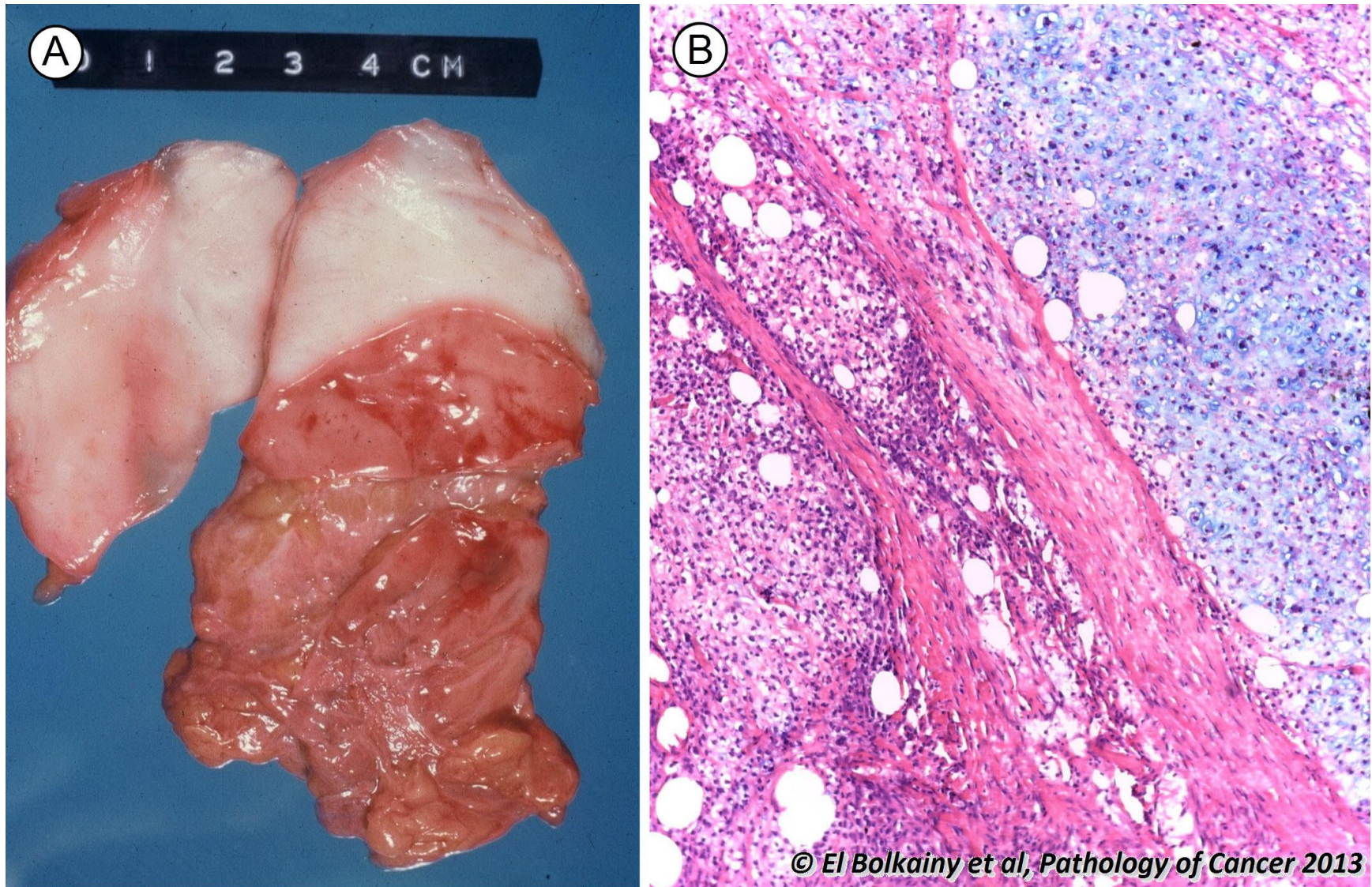
Picture 18-38 Gross appearance of recurrent phyllodes tumor. **A** Solid pattern lacking slits due to absence of epithelial components. **B** Multiple tumor nodules in the operative field of previous operation (seedling).

18.39 Pseudoangiomatous stromal hyperplasia.



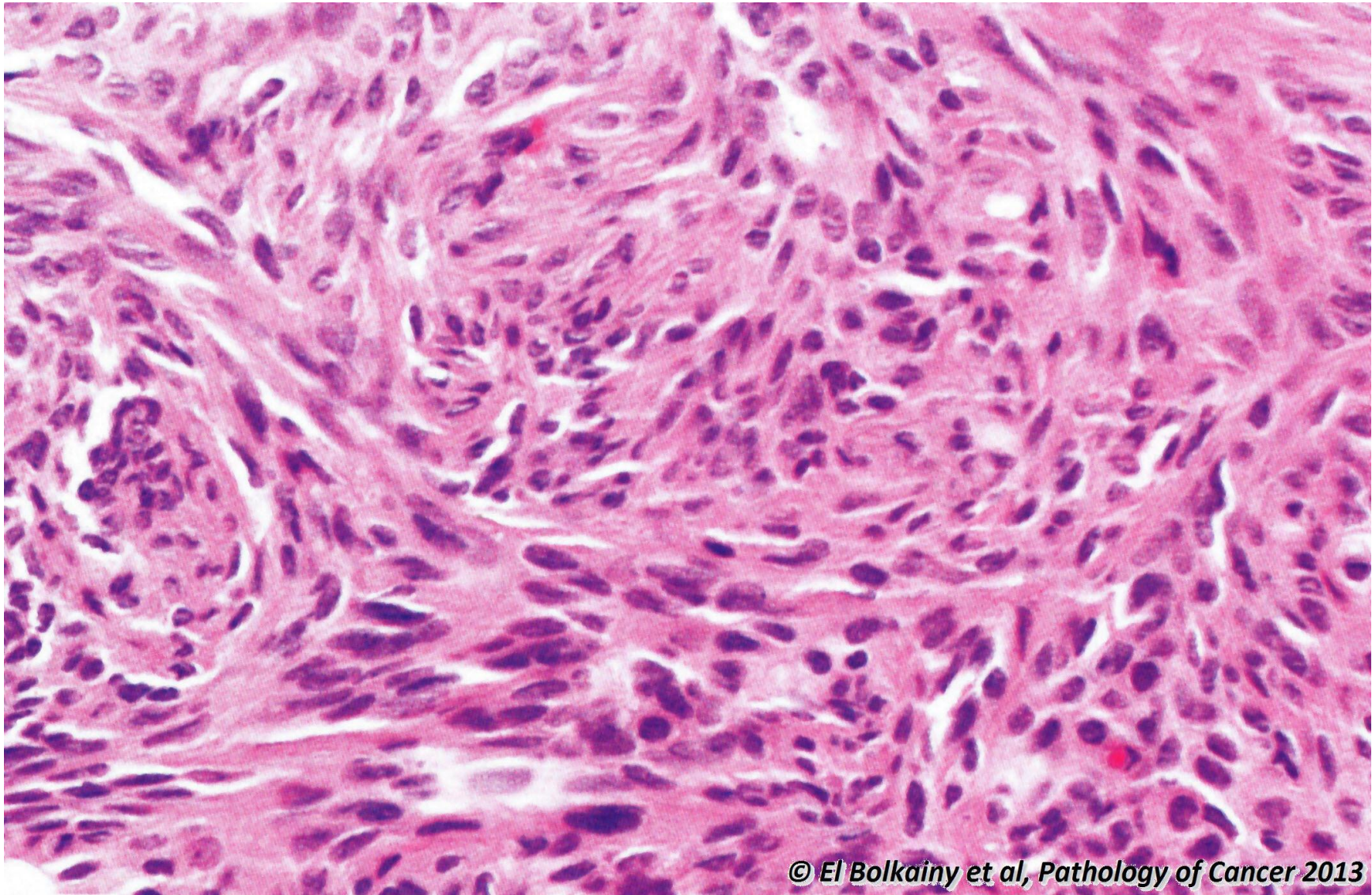
Picture 18-39 Pseudoangiomatous stromal hyperplasia. **A** Low power. **B** High power. The reactive periductal stromal myofibroblasts show vascular-like slit spaces lacking endothelial lining and red blood cell content.

18.40 Periductal stromal sarcoma of the breast.



Picture 18-40 Periductal stromal sarcoma of the breast. **A** Gross appearance, showing ill-defined mass. **B** Histology is characterized by multilineage differentiation of mesenchyme (fibrosarcoma, chondrosarcoma, and liposarcoma) and absent epithelial elements. This tumor was previously called mesenchymoma.

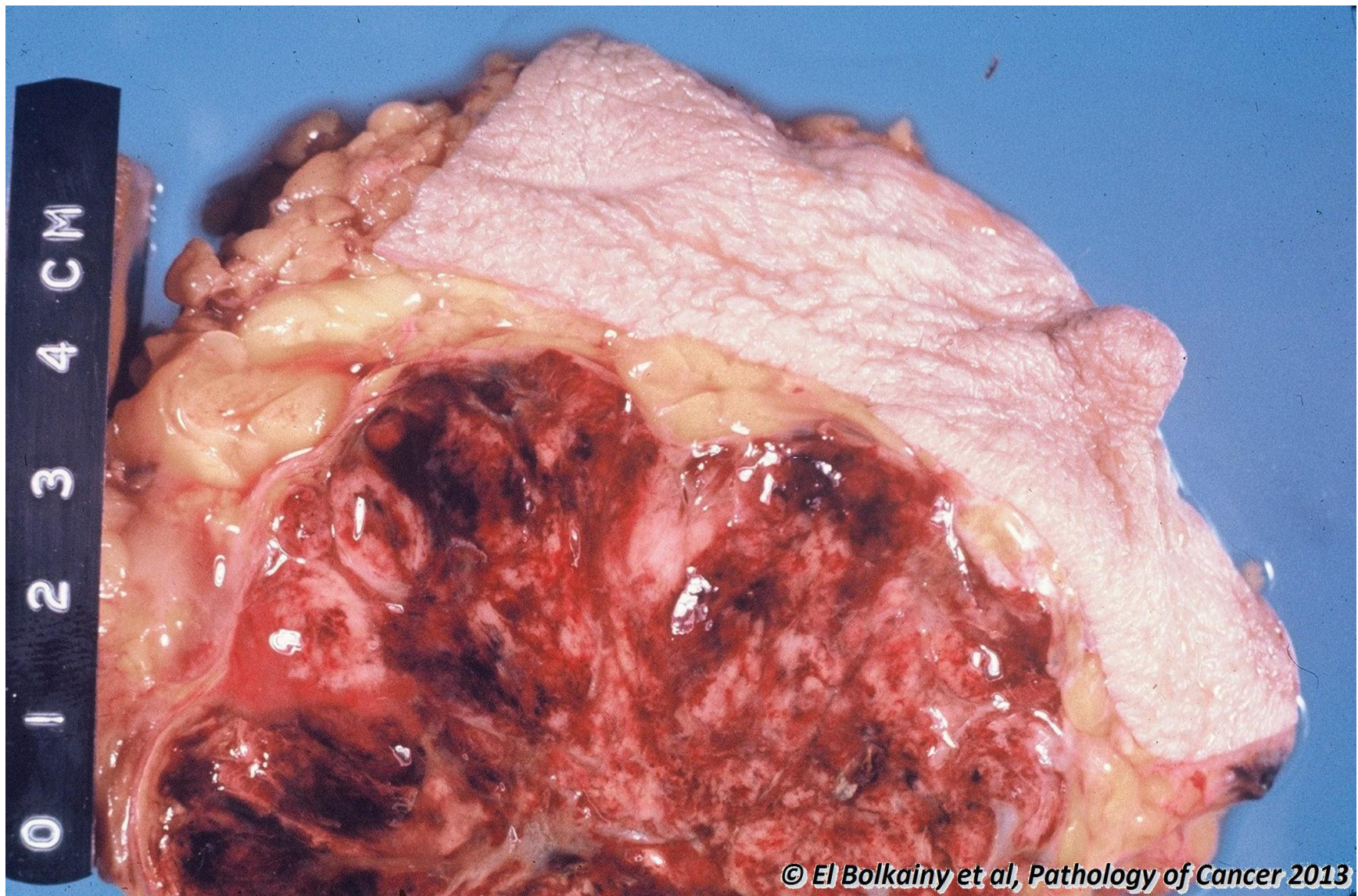
18.41 Malignant myoepithelioma of the breast.



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Picture 18-41 Malignant myoepithelioma of the breast. This tumor is a rarely metastasizing low grade tumor. Mitotic activity is low (3-4 mitotic figures /10 HPF).

18.42 Hemangiosarcoma of the breast.



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Picture 18-42 Hemangiosarcoma of the breast. This arises from soft tissue of breast and is characterized by bulky size and hemorrhagic appearance. Angiosarcomas of skin of breast or arm may complicate radiotherapy or radical mastectomy respectively.

18.43 Gross appearance of myxoliposarcoma.



Picture
18-43

Gross appearance of myxoliposarcoma. Note the glistening appearance of myxoliposarcoma.