

## Part II

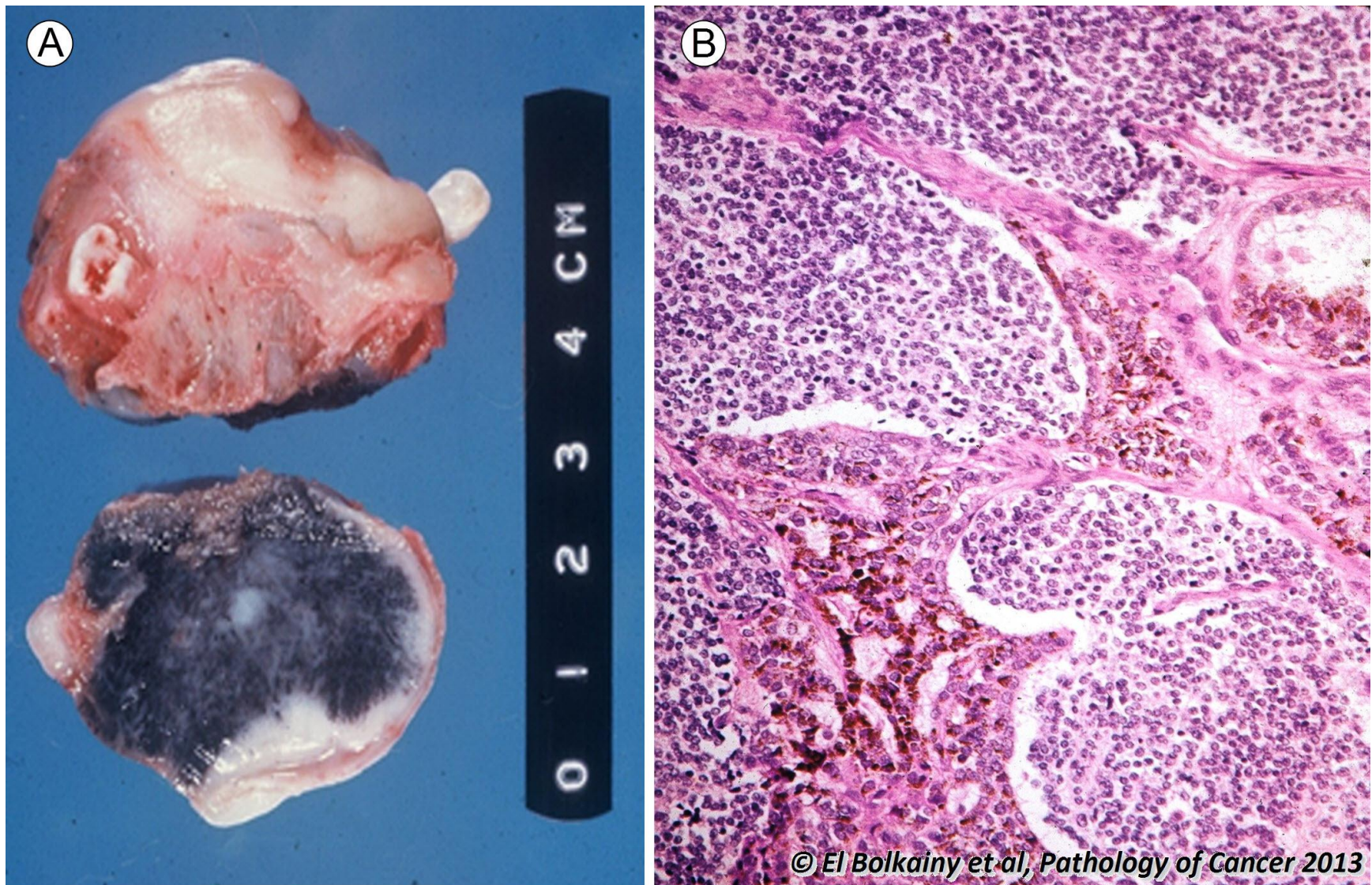
# Systemic Pathology of Cancer



## Chapter 9

# Tumors of upper respiratory tract

9.1 Pigmented neuroectodermal tumor of infancy.

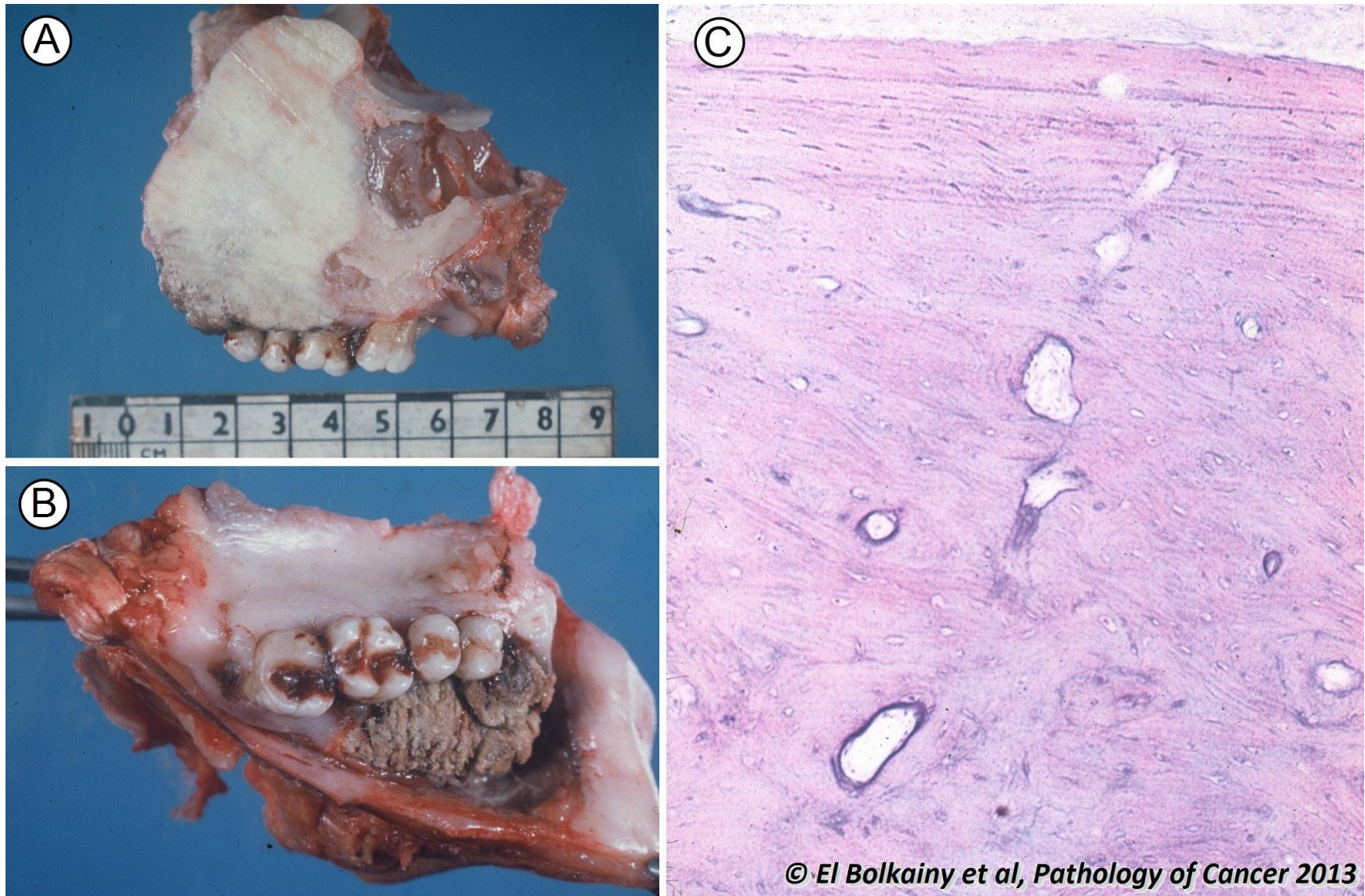


**Picture 9-1**

**Pigmented neuroectodermal tumor of infancy.** **A** Maxillectomy specimen showing the black color of tumor. **B** Histology is characterized by alveolar pattern, dual structure of large pigmented cells and smaller primitive cells enclosed by fibrotic stroma (similar to embryonic retina). Immunoreactive to chromogranin, GFAP and HMB-45.

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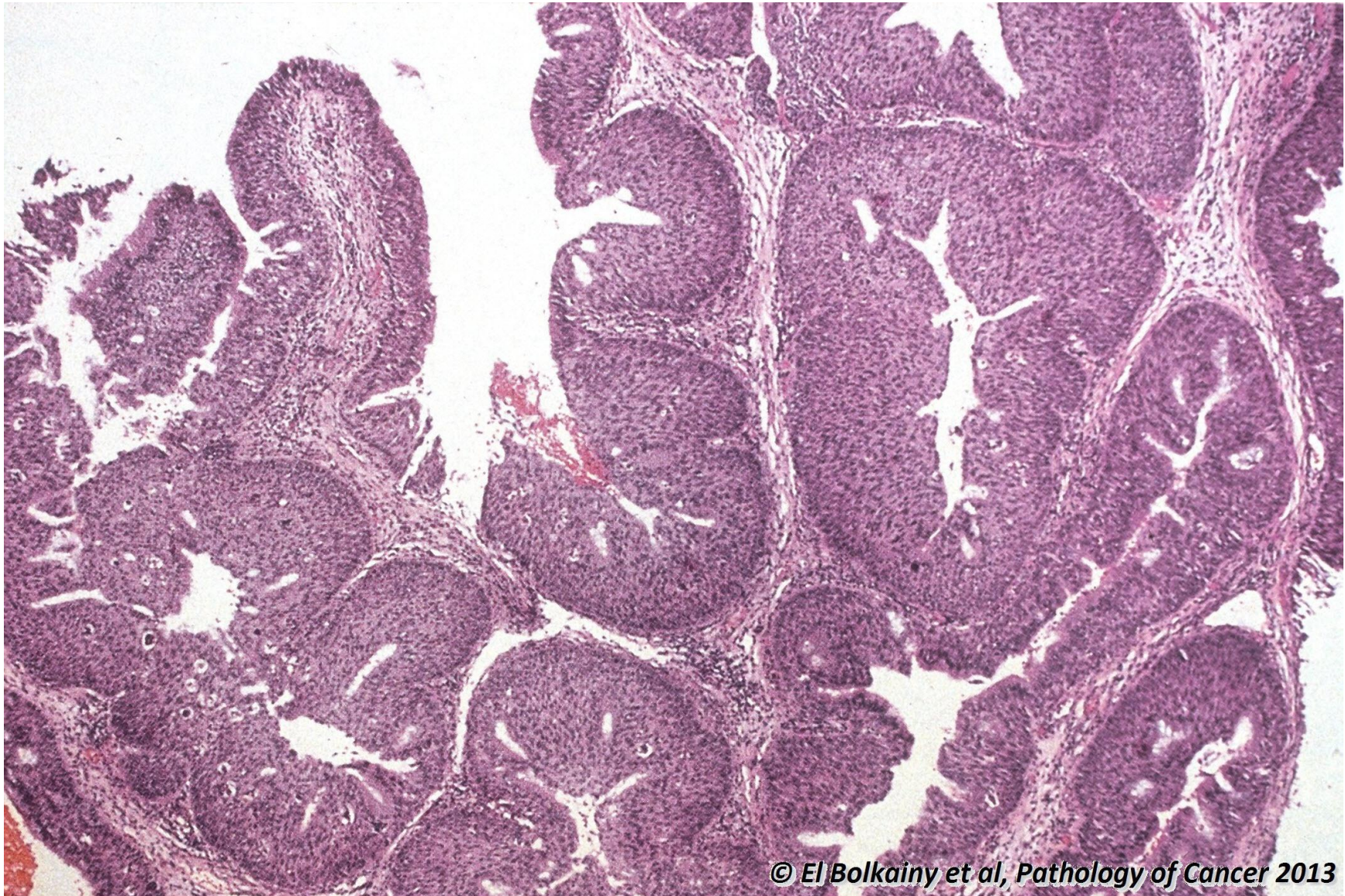
## 9.2 Osteoma of maxilla.



**Picture 9-2**

**Osteoma of maxilla.** **A** Grossly it appears ivory hard obliterating the maxillary sinus. **B** The tumor protrudes from the hard palate to the oral cavity. **C** The histology is very dense lamellar bone with obliterated marrow spaces which appear hypocellular.

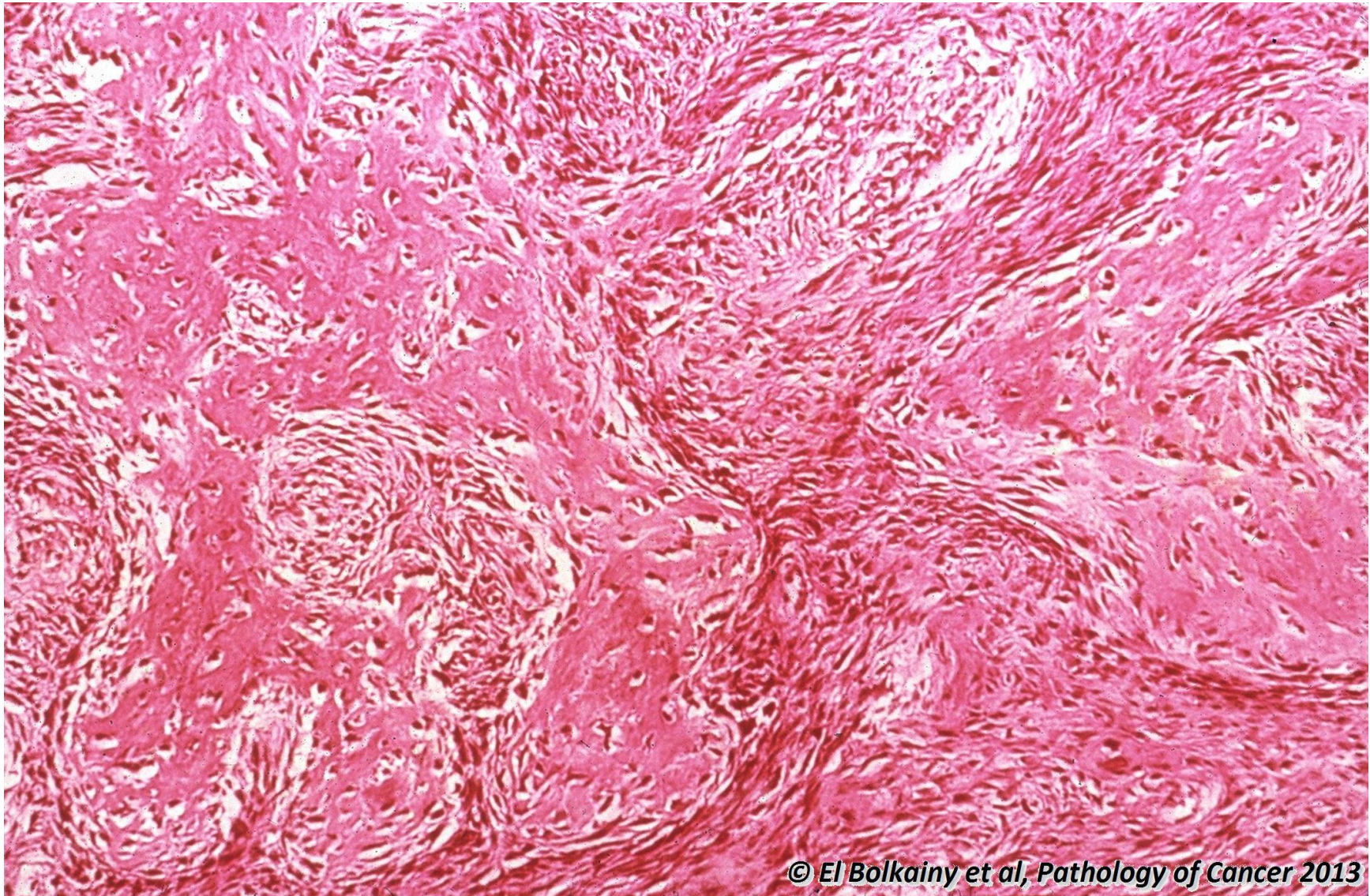
### 9.3 Inverted Schneiderian papilloma, histology.



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**Picture 9-3** Inverted Schneiderian papilloma, histology. Circumscribed nests of well-differentiated transitional epithelium, may show focal squamous or columnar metaplasia (microcysts). Co-expression of squamous and columnar cytokeratin. Recurrence rate (60%) and malignant change (10%).

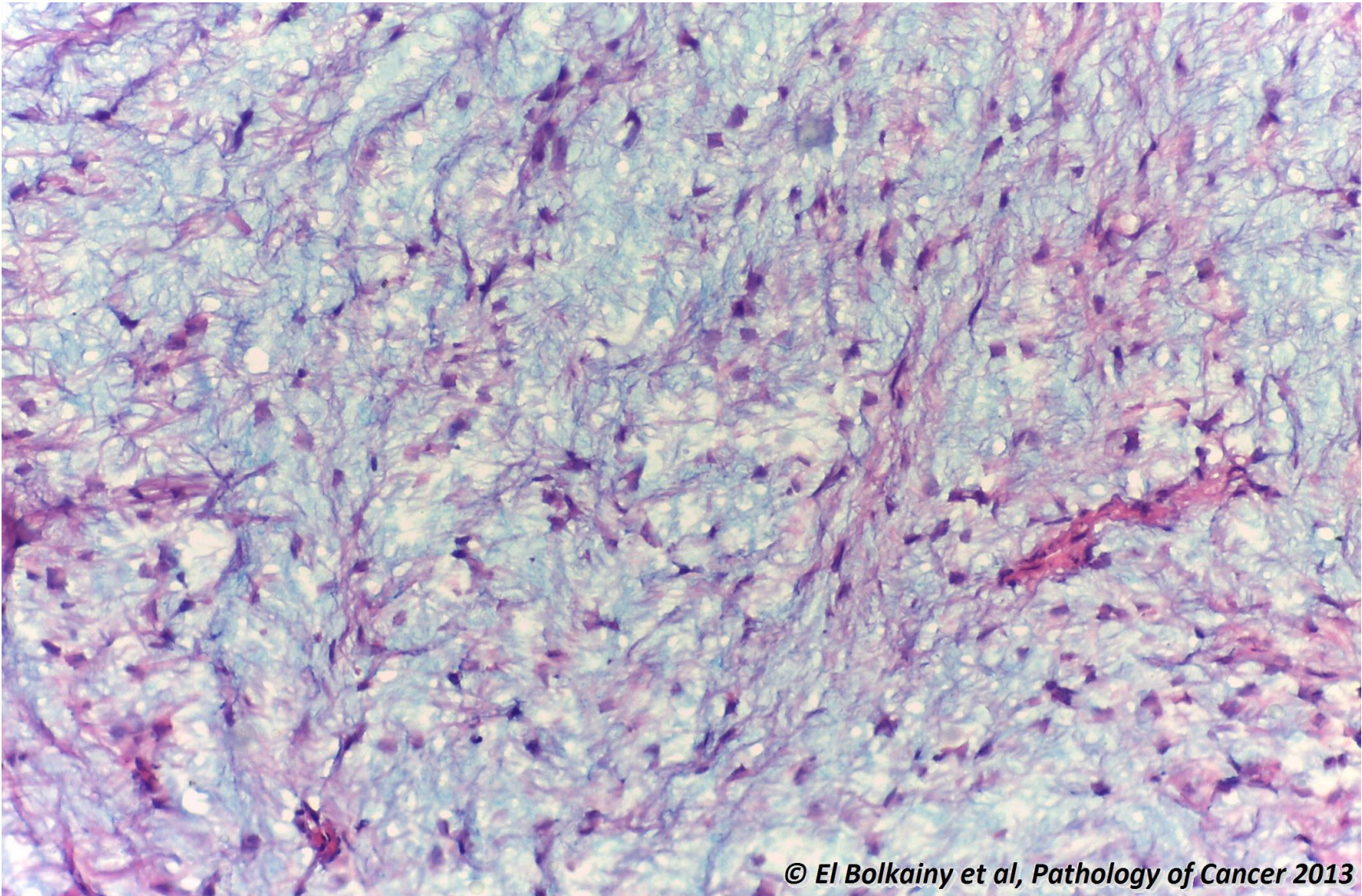
## 9.4 Ossifying fibroma, histology.



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**Picture 9-4** Ossifying fibroma, histology. This locally aggressive fibro-osseous tumor is almost confined to maxilla and mandible. Contrary to fibrous dysplasia, the osteoid shows osteoblastic rimming. There is high risk of recurrence.

## 9.5 Myxoma, histology.

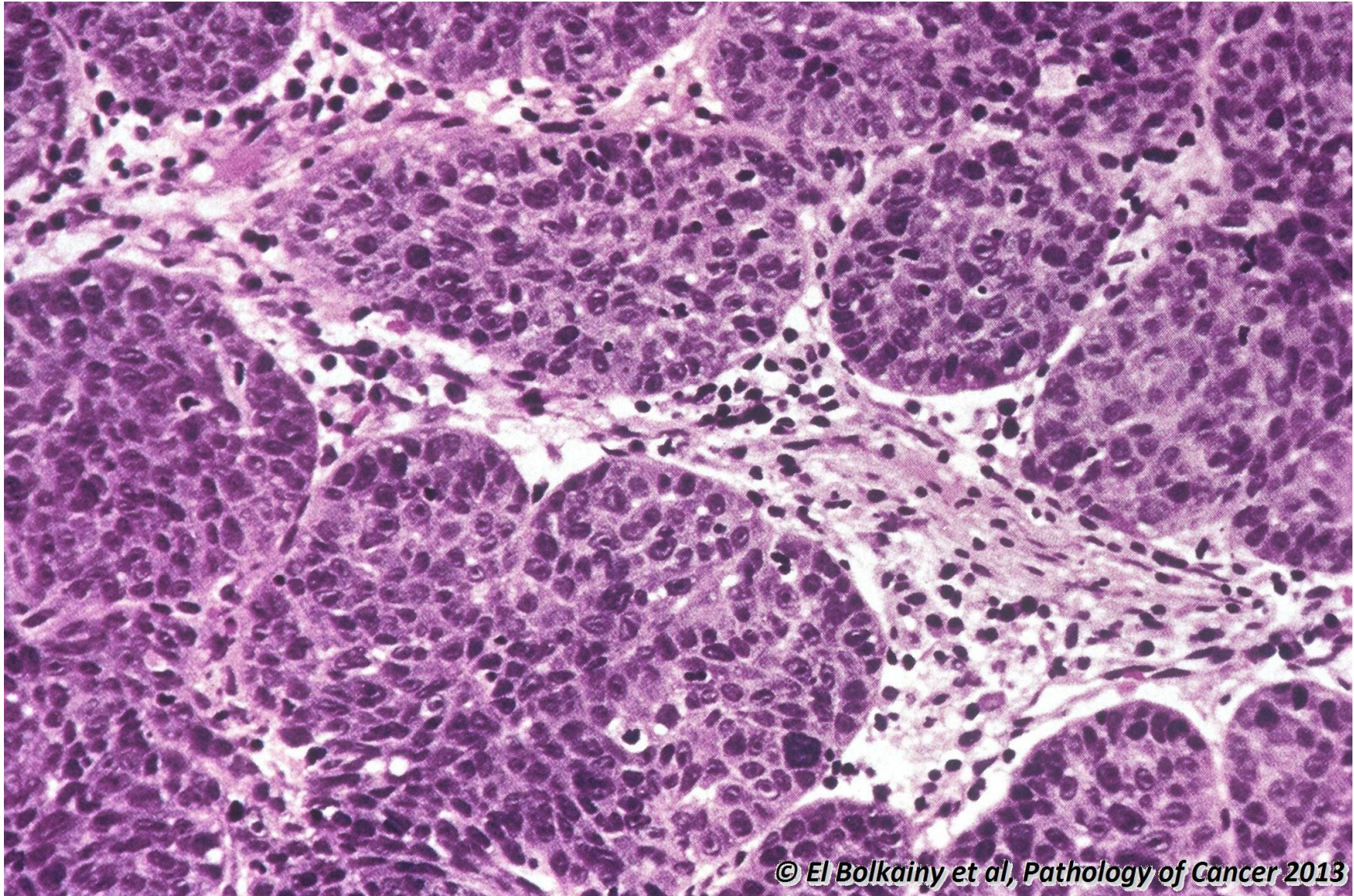


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**Picture 9-5** **Myxoma, histology.** It shows stellate cells in a myxoid background. Although categorized by WHO as a benign tumor, the recurrence rate is high (25%), hence, it should be treated as borderline tumor with adequate excision and safety margin.



9.6 Schneiderian carcinoma (transitional or non-keratinizing squamous carcinoma), histology.

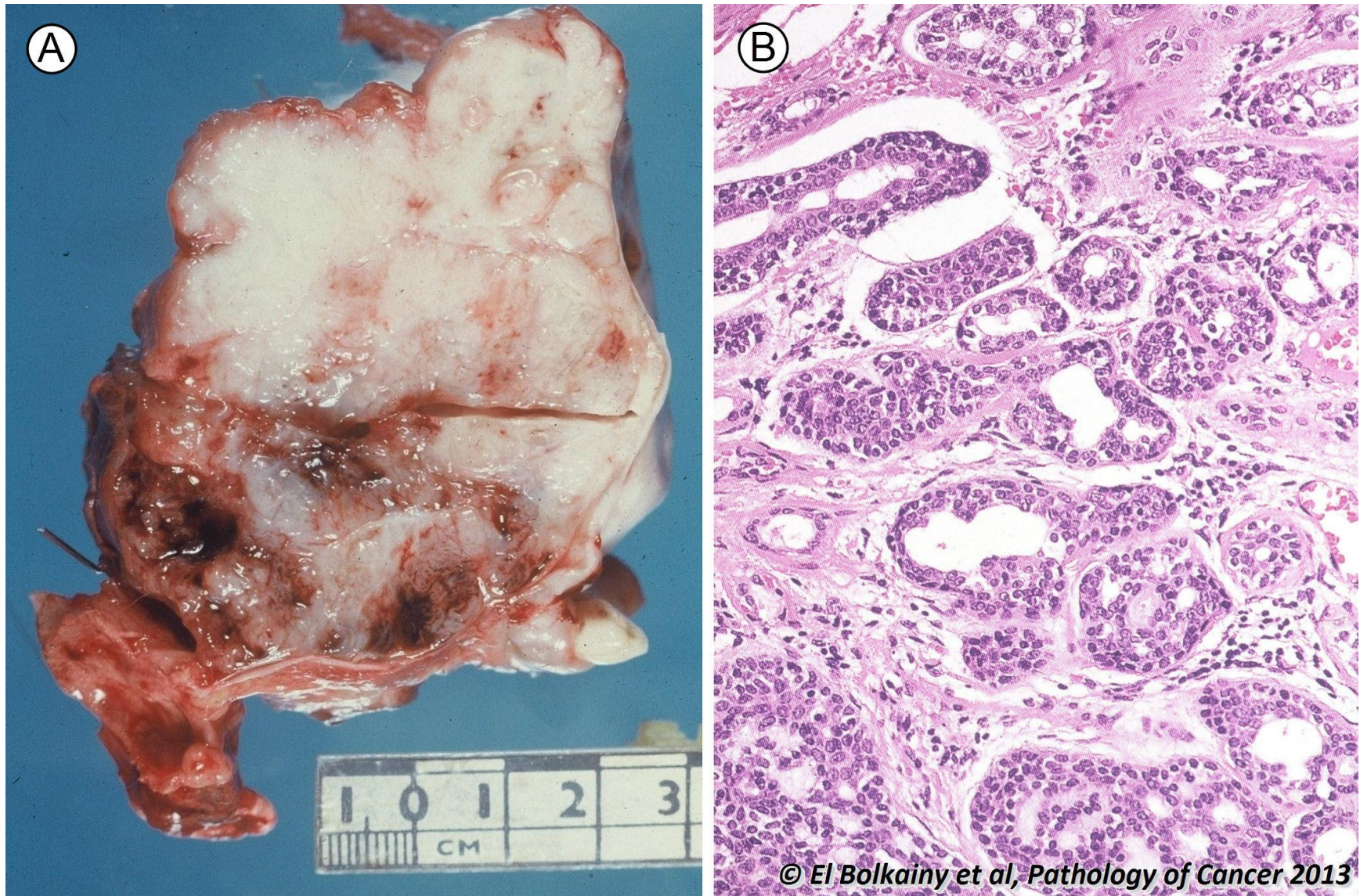


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**Picture  
9-6**

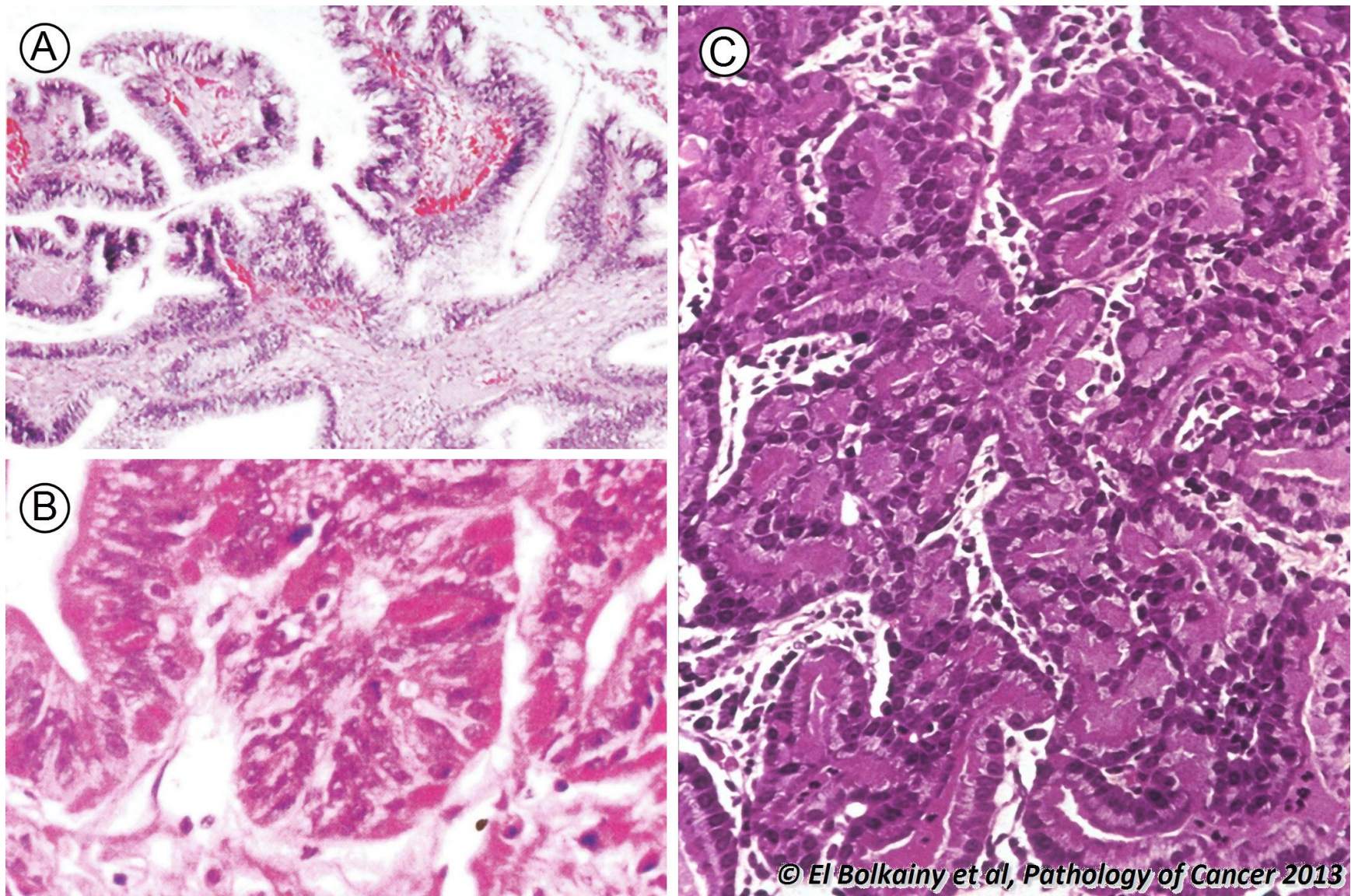
**Schneiderian carcinoma (transitional or non-keratinizing squamous carcinoma), histology.** It differs from inverted papilloma by its solid pattern, invasion, necrosis and increased mitosis. It is immunoreactive to cytokeratin 5/6, 8 and 13. Prognosis is more favorable in nasal than nasopharyngeal location.

9.7 Adenoid cystic carcinoma.



**Picture 9-7** Adenoid cystic carcinoma. **A** Maxillectomy specimen. This is the most common salivary gland tumor at this site characterized by perineural invasion for a distance beyond its gross tumor margin. **B** The cylindromatous histologic pattern is diagnostic, but may show solid and tubular patterns.

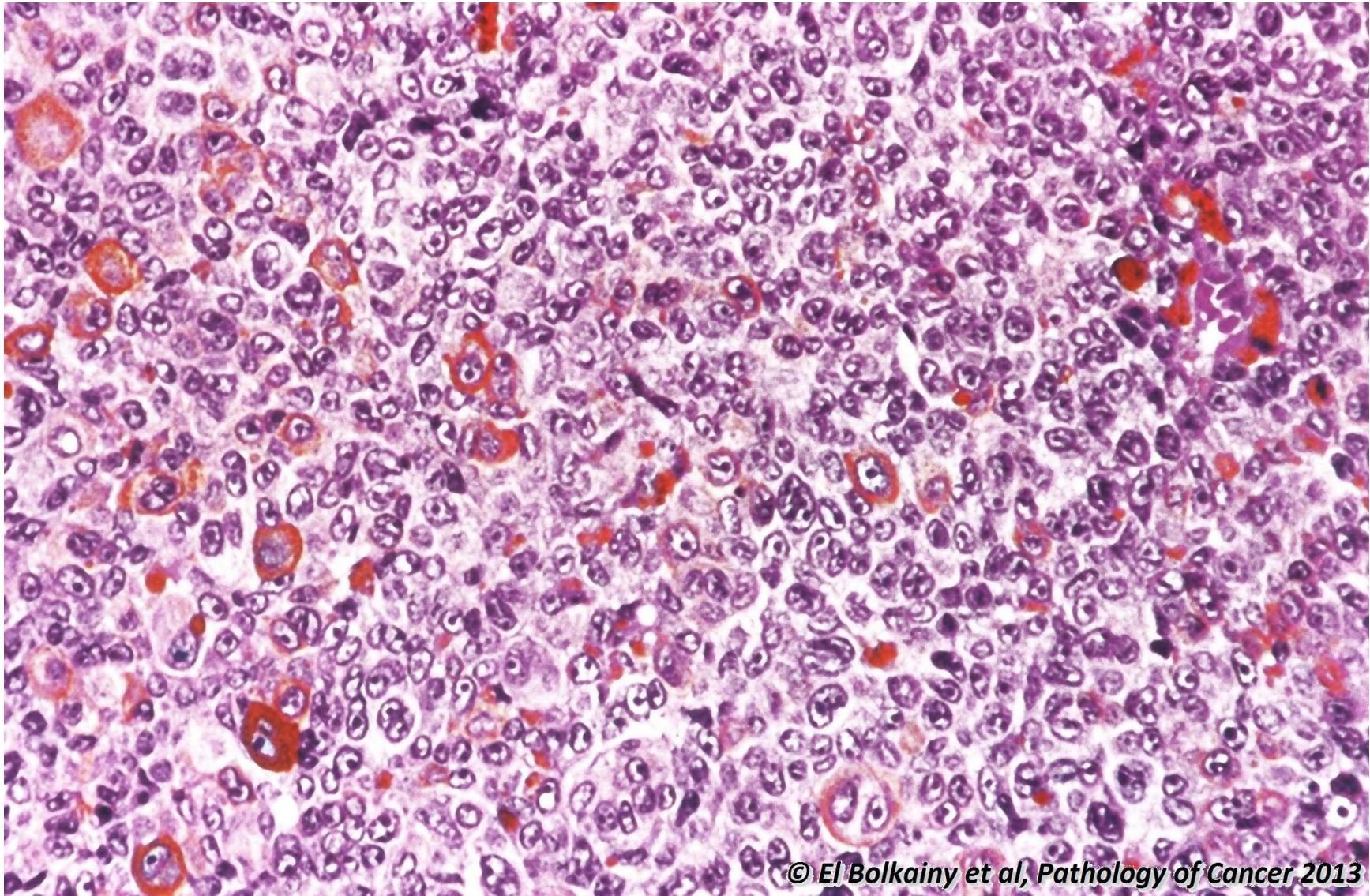
## 9.8 Sinonasal adenocarcinoma, histology.



**Picture  
9-8**

**Sinonasal adenocarcinoma, histology.** A and B Intestinal type, simulates gastrointestinal carcinomas, stratified epithelium, papillary pattern, goblet or paneth cell differentiation and CDX-2 positivity. C Non-intestinal type, pseudo-stratified cuboidal or columnar epithelium, immunoreactive to CK-7, CK-20 and CEA. It may be low or high grade.

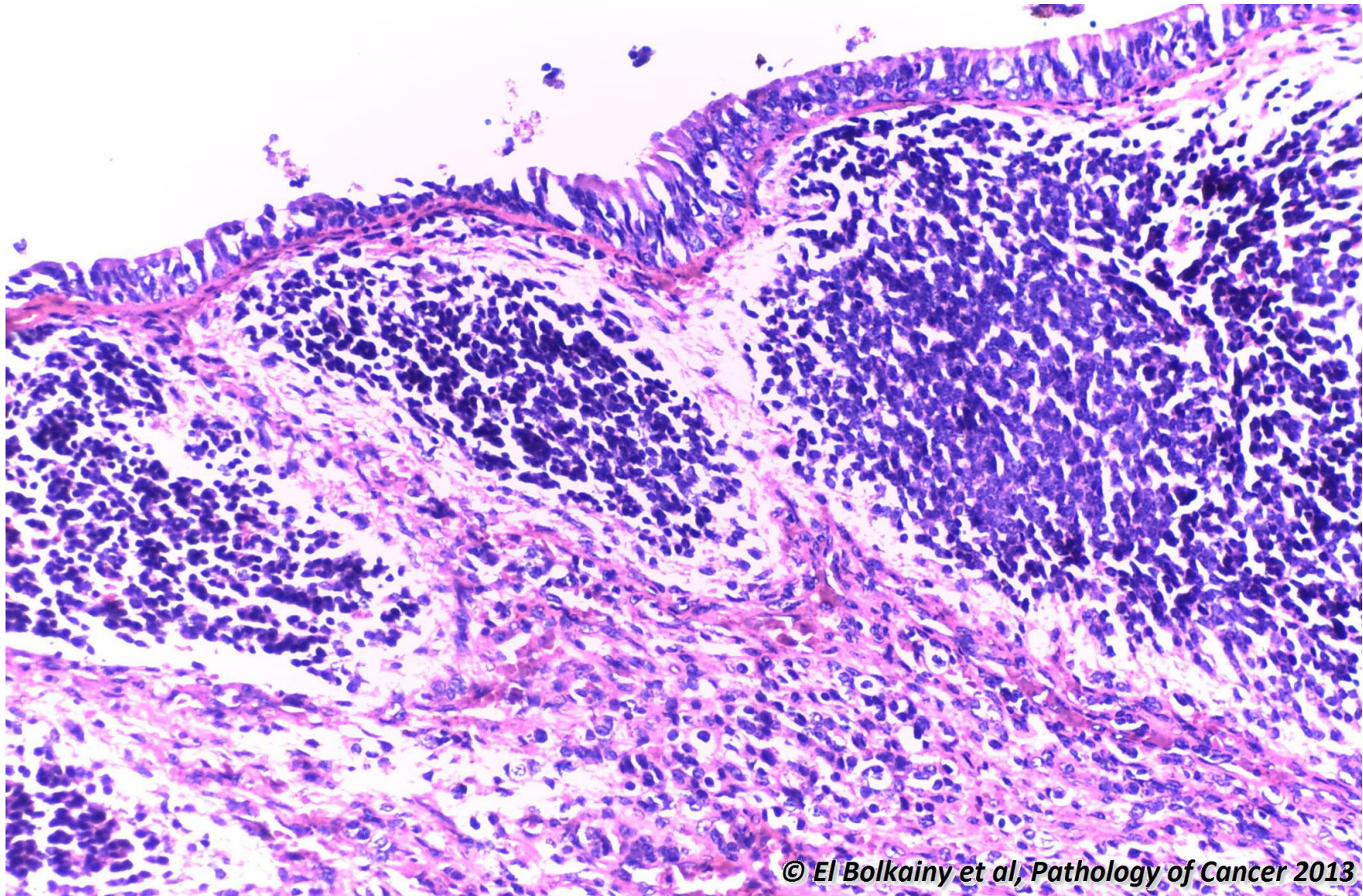
## 9.9 Sinonasal melanoma, histology.



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**Picture 9-9** Sinonasal melanoma, histology. A Discohesive pleomorphic cell population (oval, spindle, plasmacytoid and giant cells) with prominent nucleoli, mitosis and cytoplasmic melanin pigment. Immunoreactive to S-100, Melan-A1 and HMB-45.

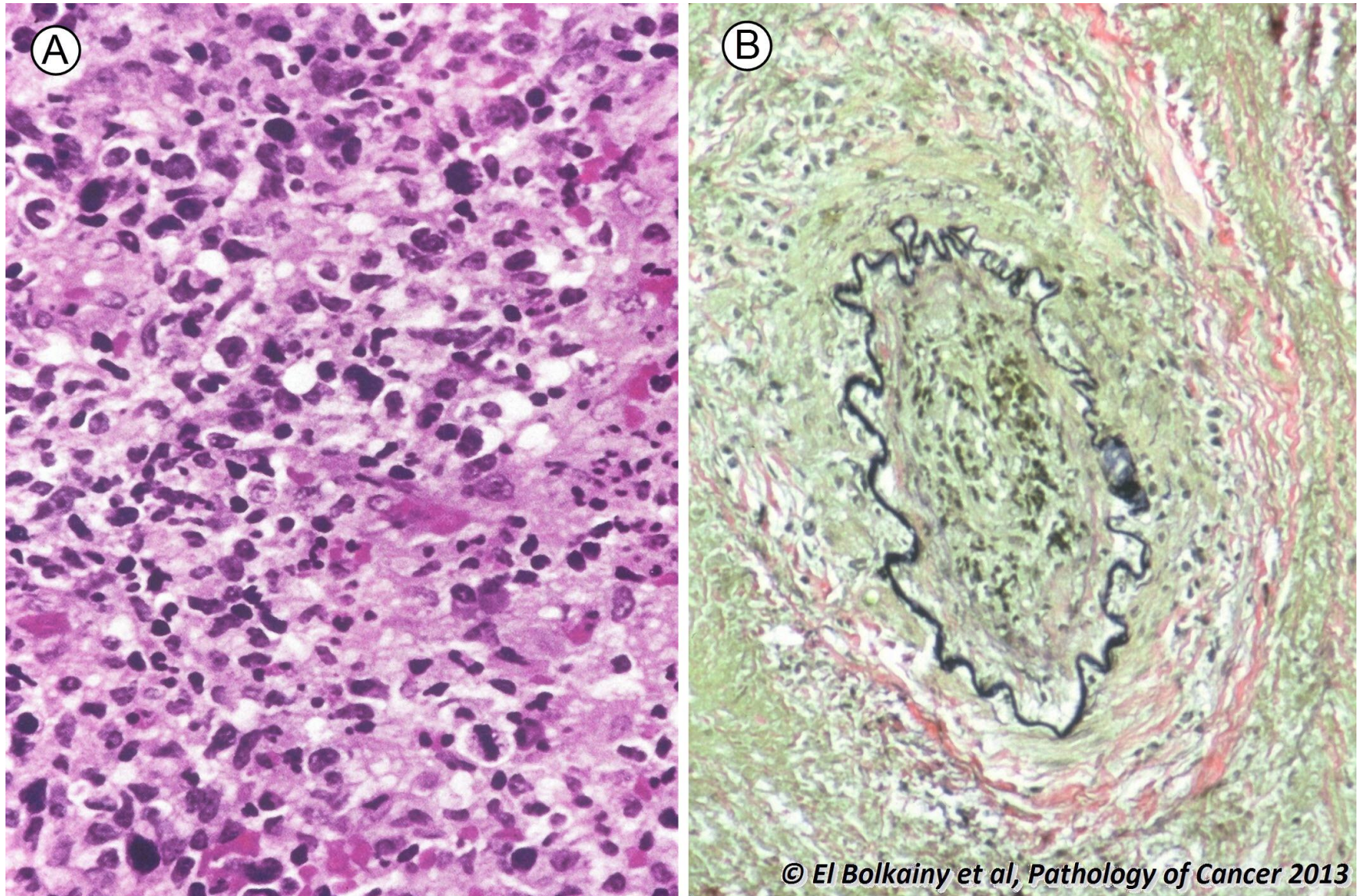
## 9.10 Olfactory neuroblastoma, histology.



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**Picture 9-10** Olfactory neuroblastoma, histology. It is composed of nests of round cells with neurofibrillary areas enclosed by fibrovascular stroma containing sustentacular cells (organoid pattern). Homer-wright pseudorosettes and the Flexner-Wintersteiner true rosettes are identified.

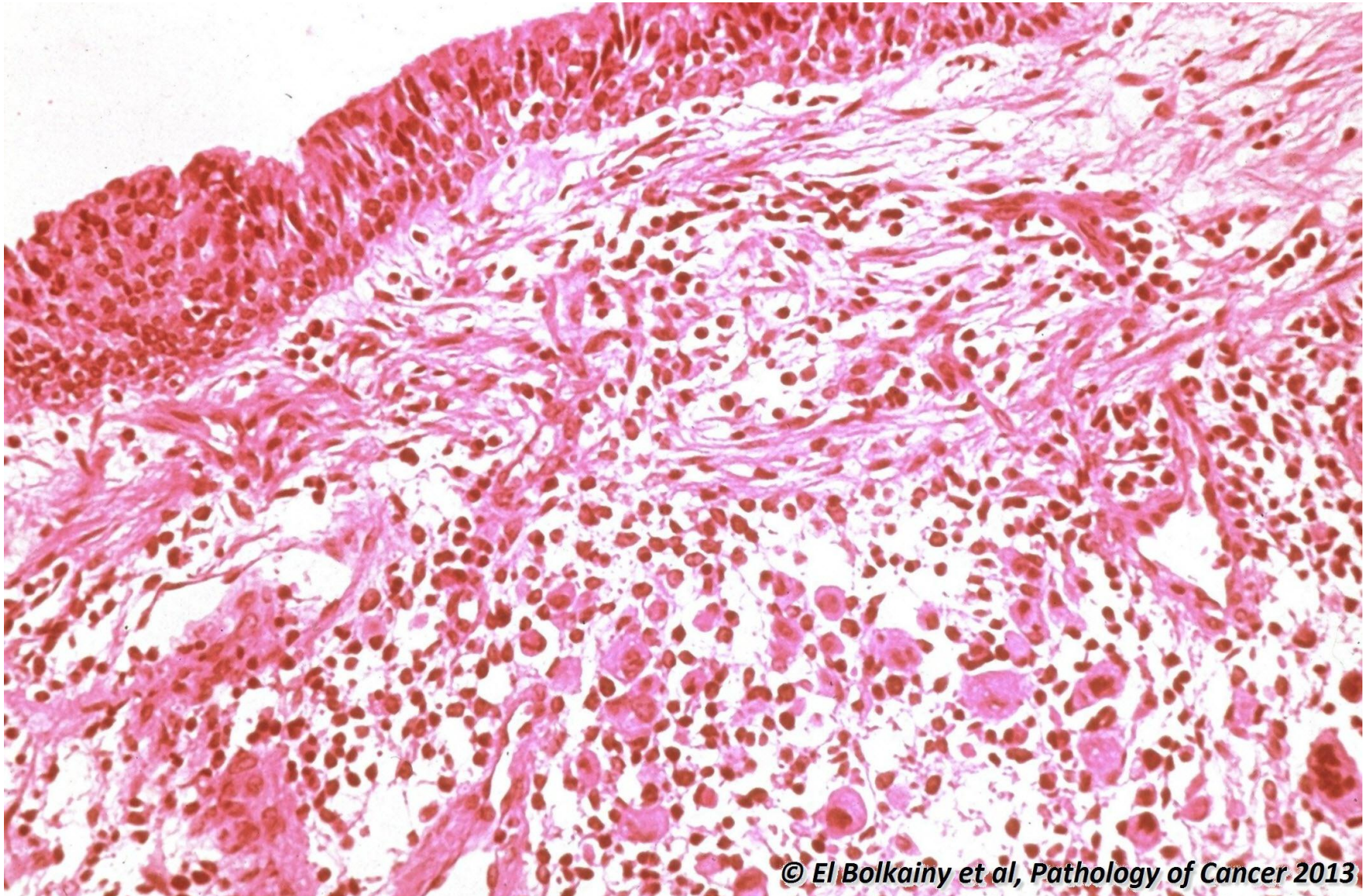
9.11 NK/T cell lymphoma, nasal type (formerly angiocentric lymphoma and midline lethal granuloma).



**Picture 9-11**

**NK/T cell lymphoma, nasal type (formerly angiocentric lymphoma and midline lethal granuloma).** **A** The histology is characterized by a mixed population of atypical lymphoid cells, inflammatory cells, with focal necrosis (positive to CD3, CD56, perforin and granzyme). **B** Invasion of blood vessels is common.

## 9.12 Embryonal rhabdomyosarcoma, histology.

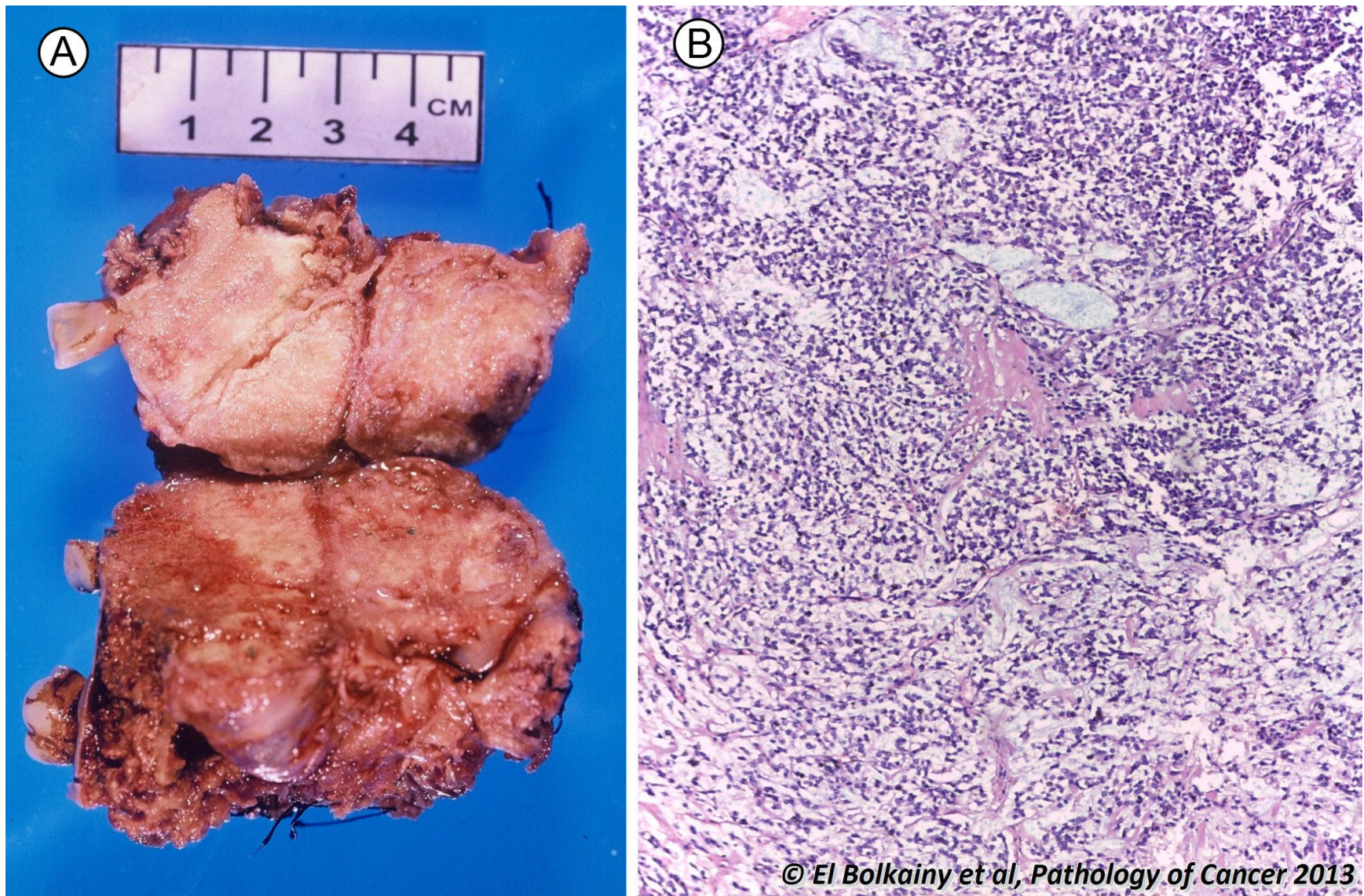


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**Picture  
9-12**

**Embryonal rhabdomyosarcoma, histology.** This pediatric tumor commonly affects pharynx and sinuses. It is composed of round and spindle cells, with tendency to hypercellularity under the epithelium (cambium layer). Tumor cells are reactive to desmin (cytoplasmic) and Myo-D1 (nuclear).

9.13 Mesenchymal chondrosarcoma.

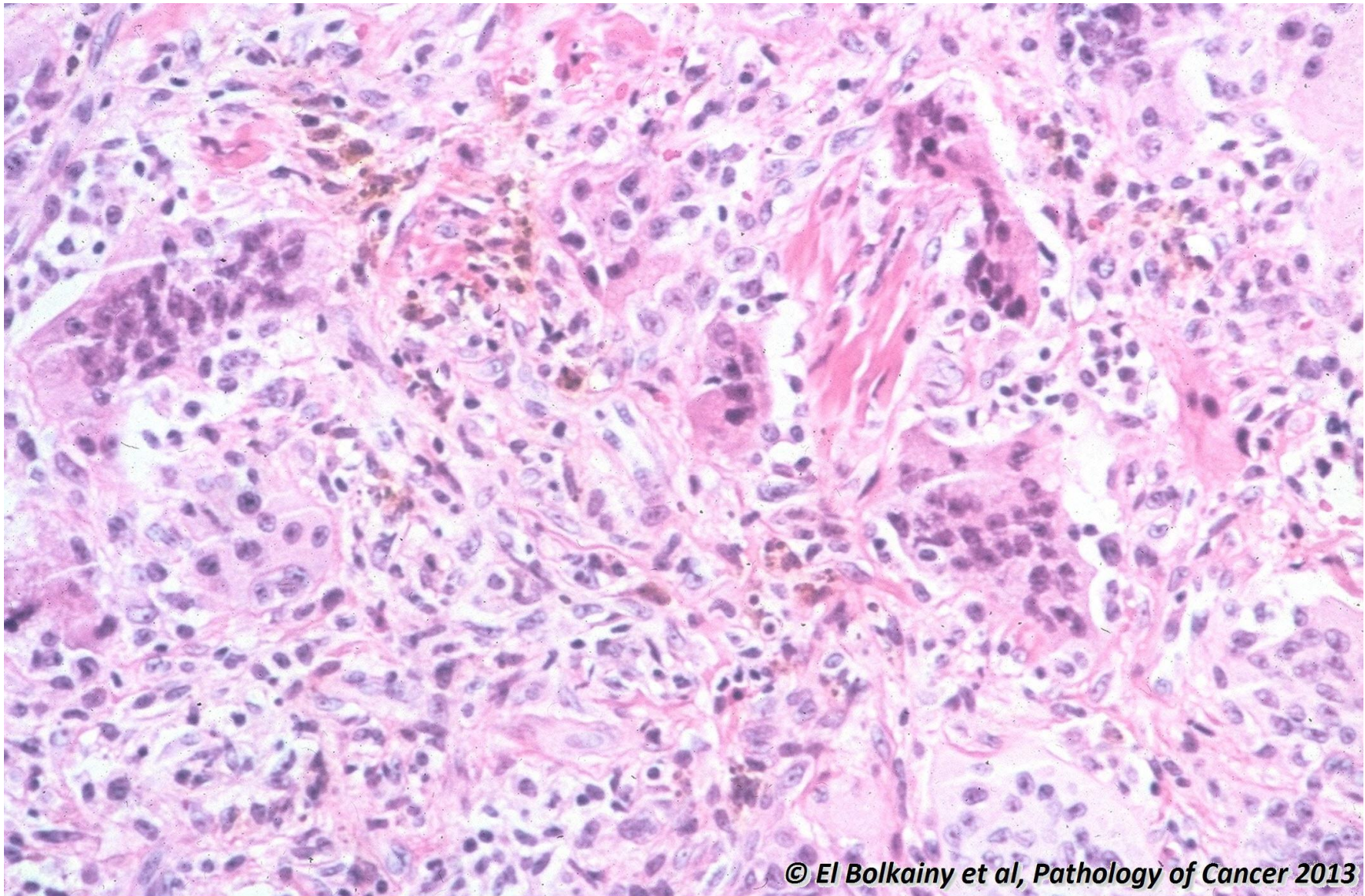


**Picture  
9-13**

**Mesenchymal chondrosarcoma.** A Gross features of a tumor mass destroying the maxilla. B Histology, in addition to atypical cartilage, there are hypercellular areas of round, spindle cells, endochondral ossification and pericytoma pattern. Tumor cells are reactive to S-100 and CD99.



9.14 Giant cell lesion (formerly giant cell reparative granuloma).

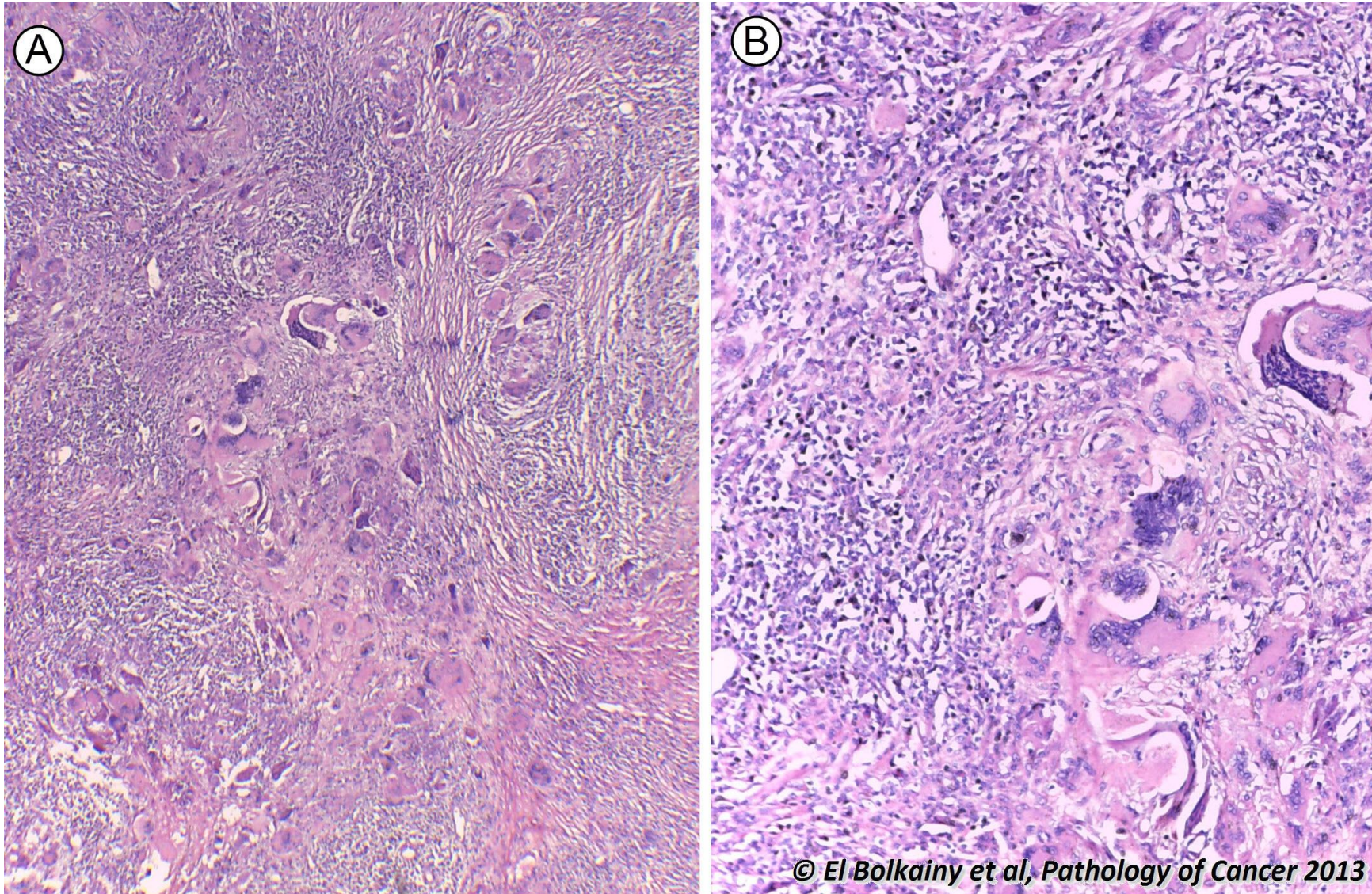


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**Picture  
9-14**

**Giant cell lesion (formerly giant cell reparative granuloma).** This is neither a giant cell tumor or granuloma. It is composed of mononuclear spindle cells, foamy cells (CD 68) and few giant cells containing few nuclei. Hyperparathyroidism must be excluded before making this diagnosis (by parathormone analysis).

9.15 Wegner granulomatosis.

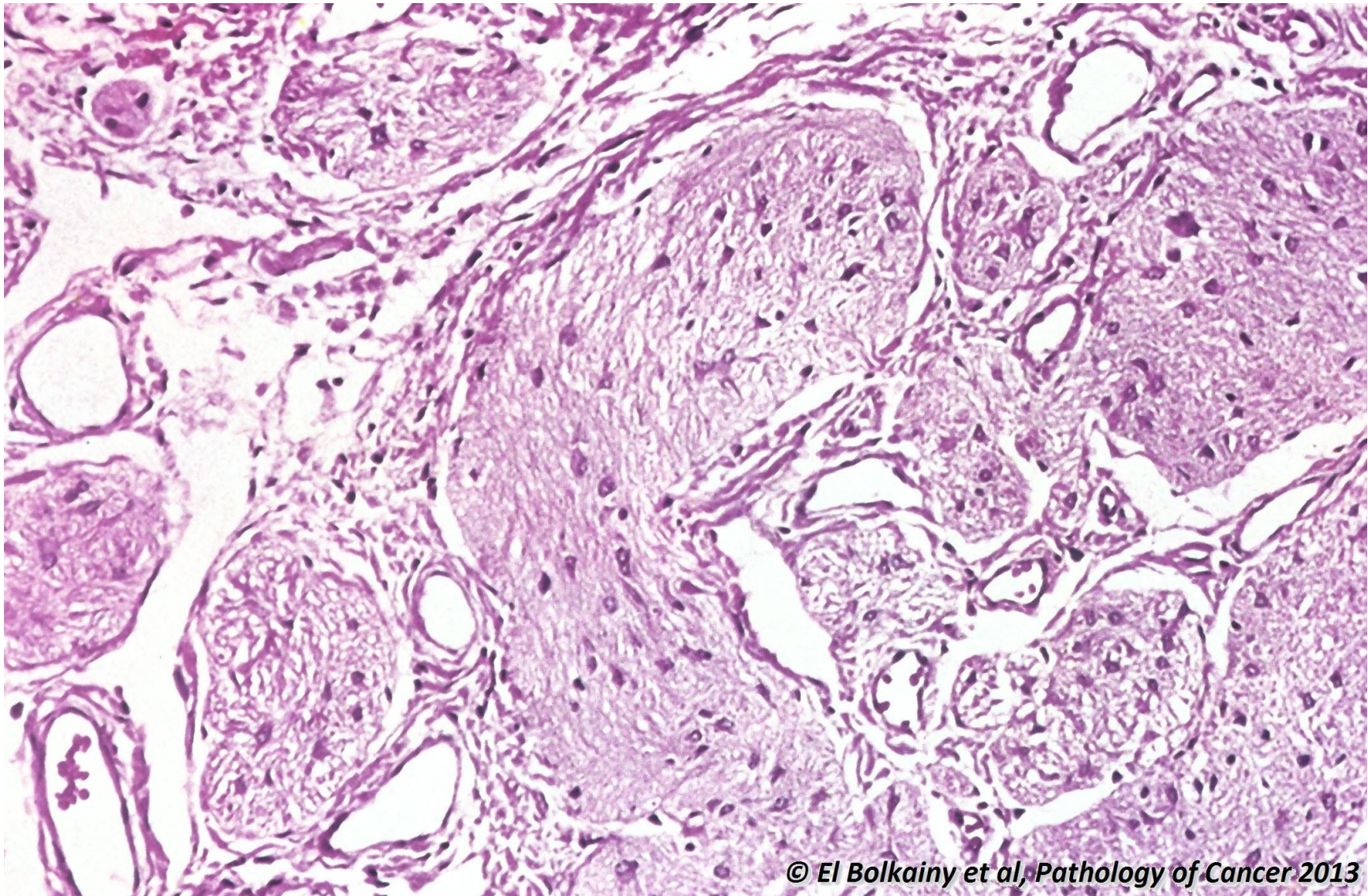


**Picture 9-15**

**Wegner granulomatosis.** This idiopathic vasculitis (possible immune disorder) shows geographic areas of bionecrosis with granulomatous reaction rich in giant cells and dendritic cells. Immunofluorescence: antibodies against proteinase-3 (PR-3) are positive in neutrophils. **A** Low power. **B** High power

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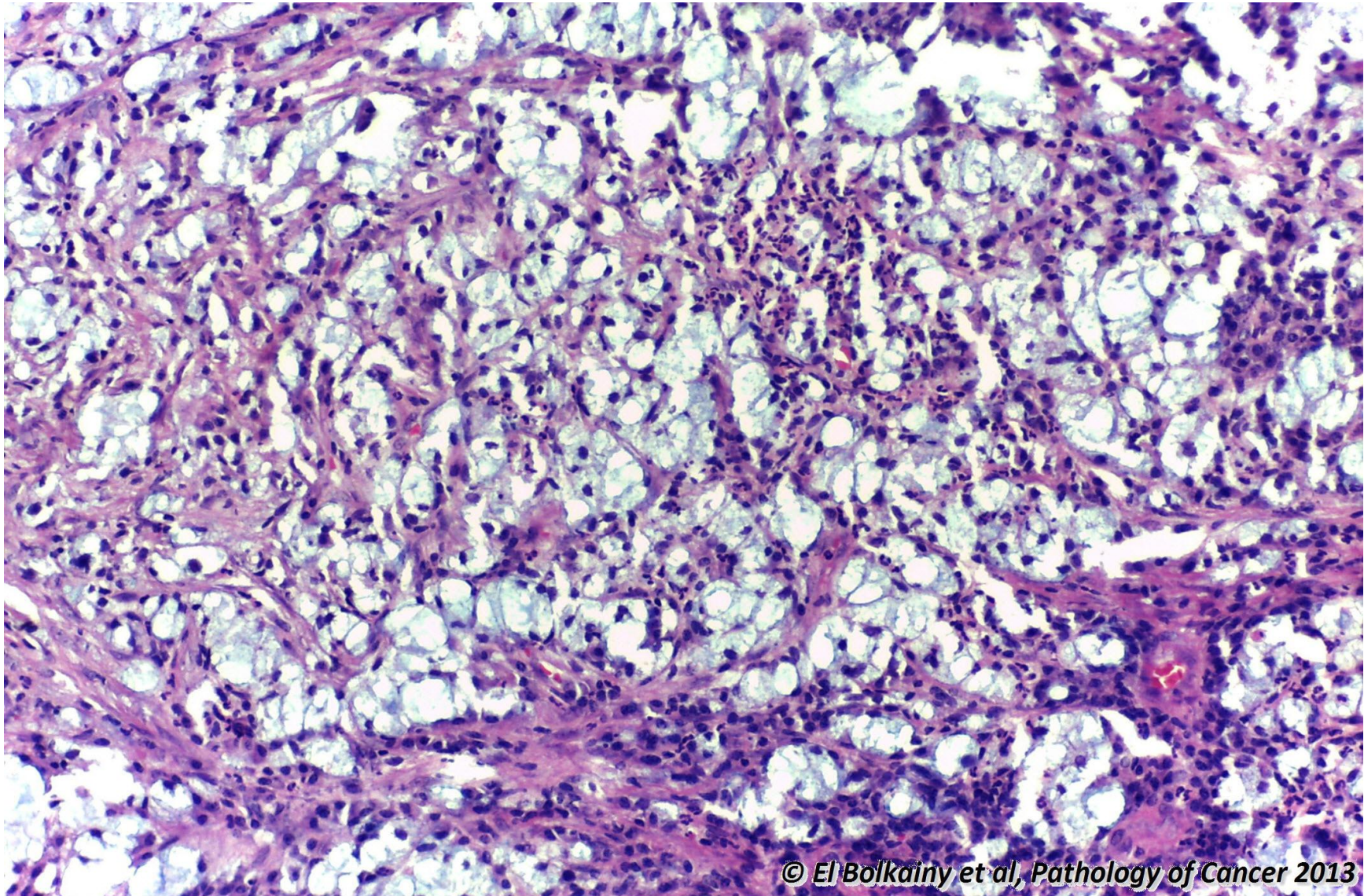
9.16 Ectopic glial tissue in nasal cavity (formerly so-called nasal glioma).



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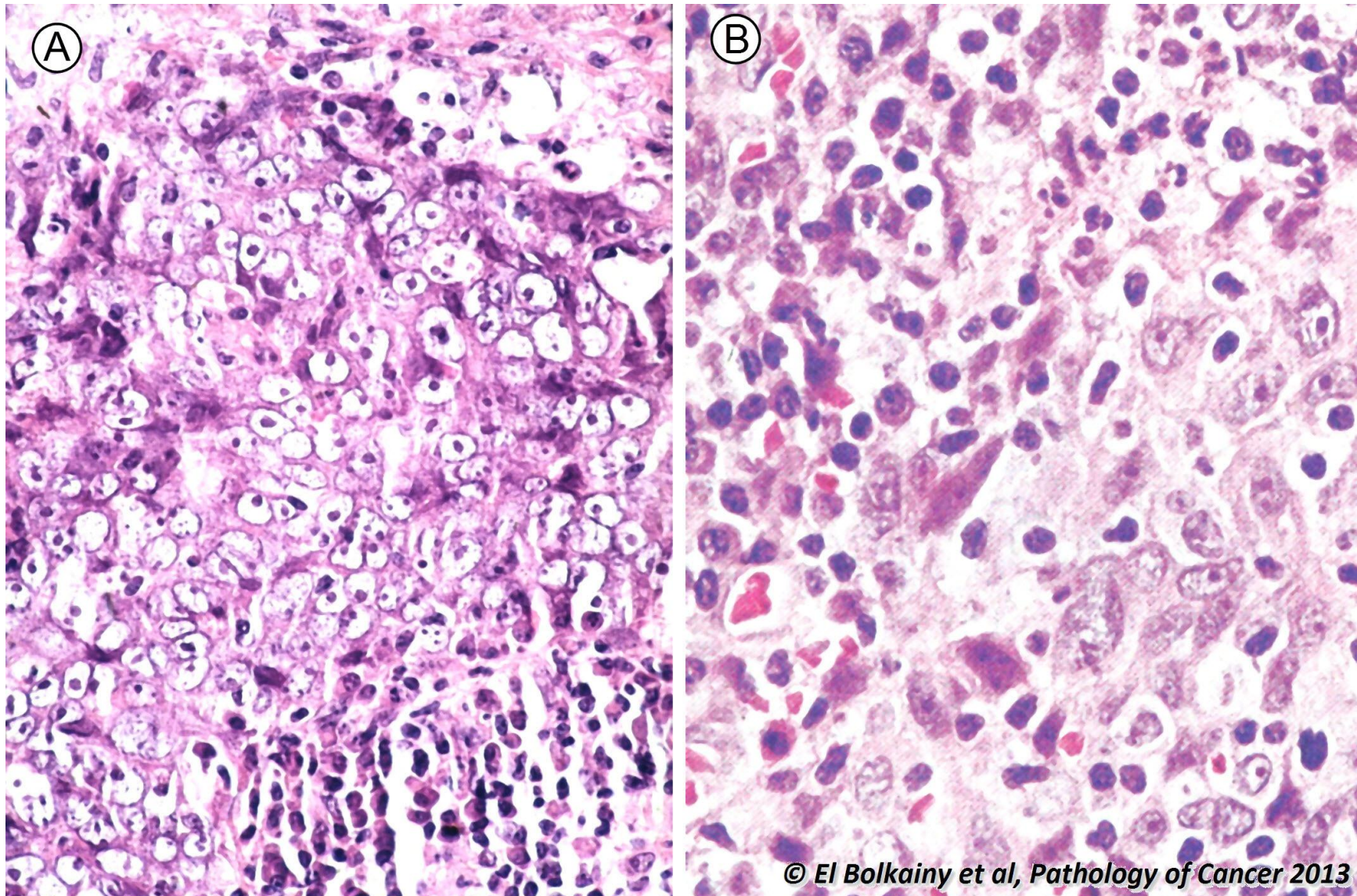
**Picture 9-16** Ectopic glial tissue in nasal cavity (formely so-called nasal glioma). This is not a neoplasm, but, just an ectopic glial tissue with normal histologic structure.

## 9.17 Rhinoscleroma, histology.



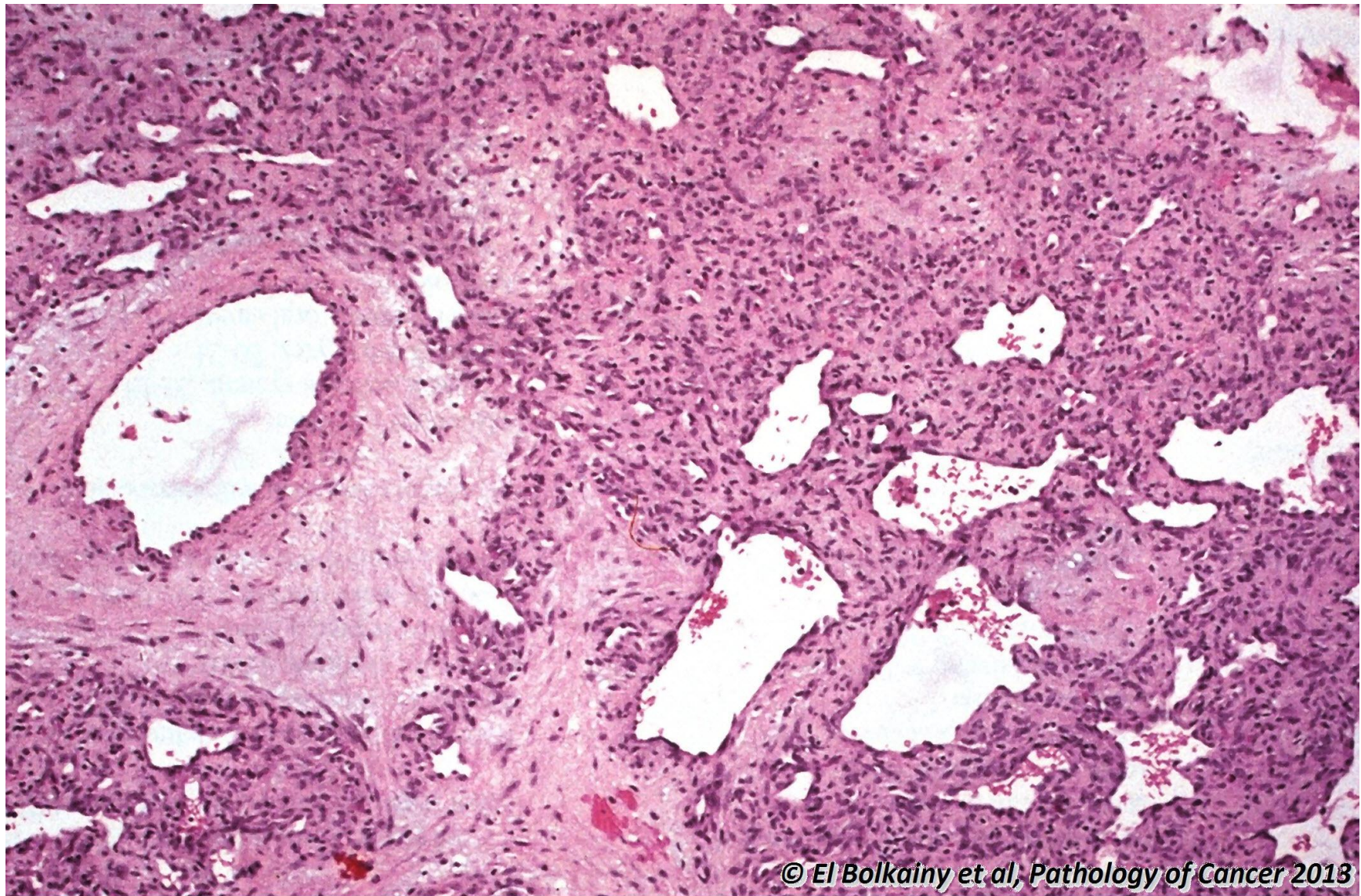
**Picture 9-17** Rhinoscleroma, histology. It is characterized by foamy cells which is confused with clear cell carcinoma. The main distinguishing features are lack of sinusoids, presence of inflammation CD 68 positivity.

9.18 Nasopharyngeal carcinoma, histology.



**Picture 9-18** **Nasopharyngeal carcinoma, histology.** **A** Undifferentiated non-keratinizing (nasal or Schmincke type), characterized by large vesicular nuclei with prominent nucleoli. **B** Differentiated non-keratinizing, composed of round or spindle cells, hyperchromatic nuclei and lack of cytoplasmic keratinization.

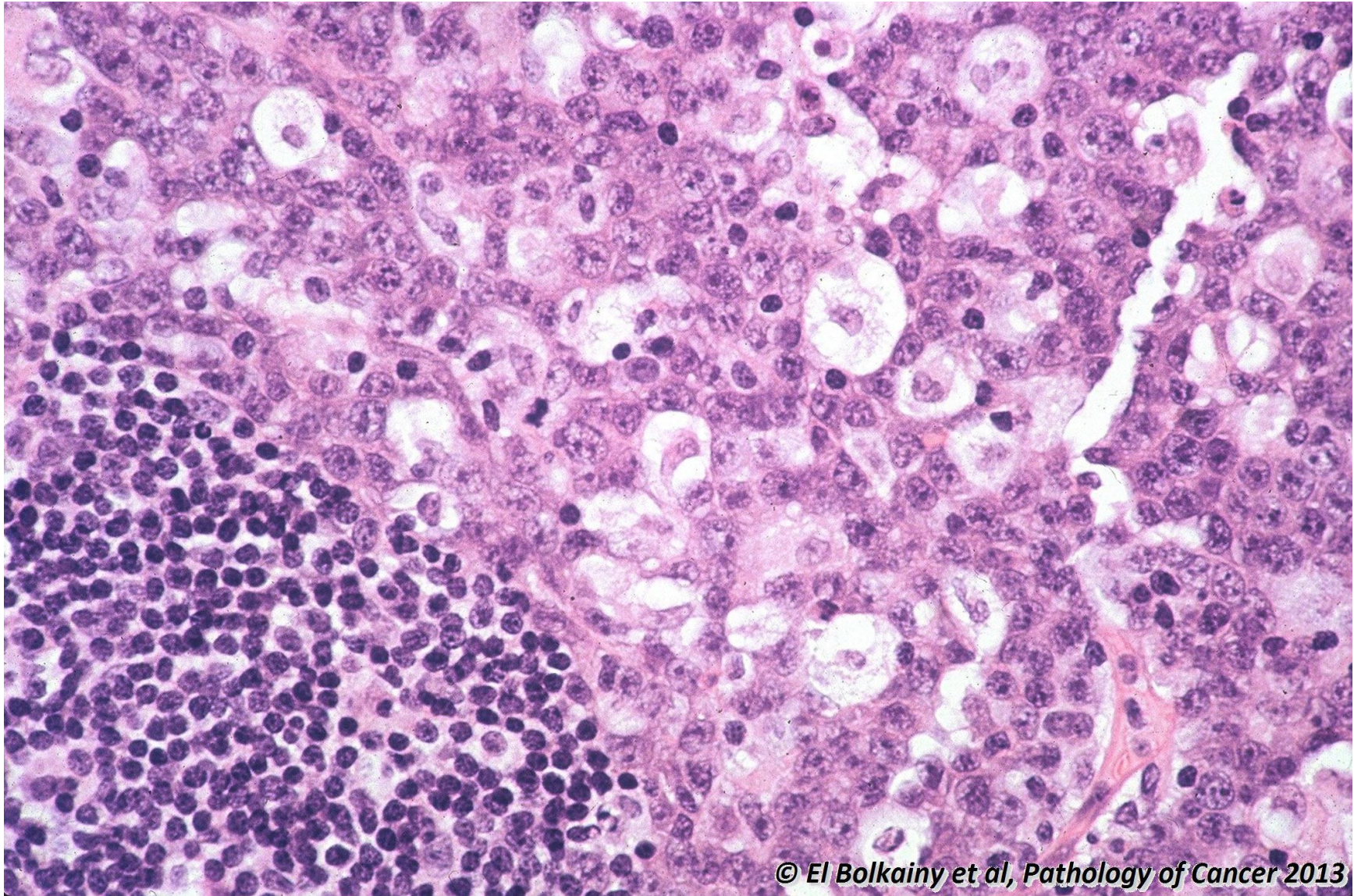
9.19 Angiofibroma, histology.



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**Picture 9-19** Angiofibroma, histology. It is composed of thin-walled large vessels lacking muscular wall, surrounded by fibroblasts with collagenized stroma. The tumor is  $\beta$ -catenin positive and recurrent in 20% of cases.

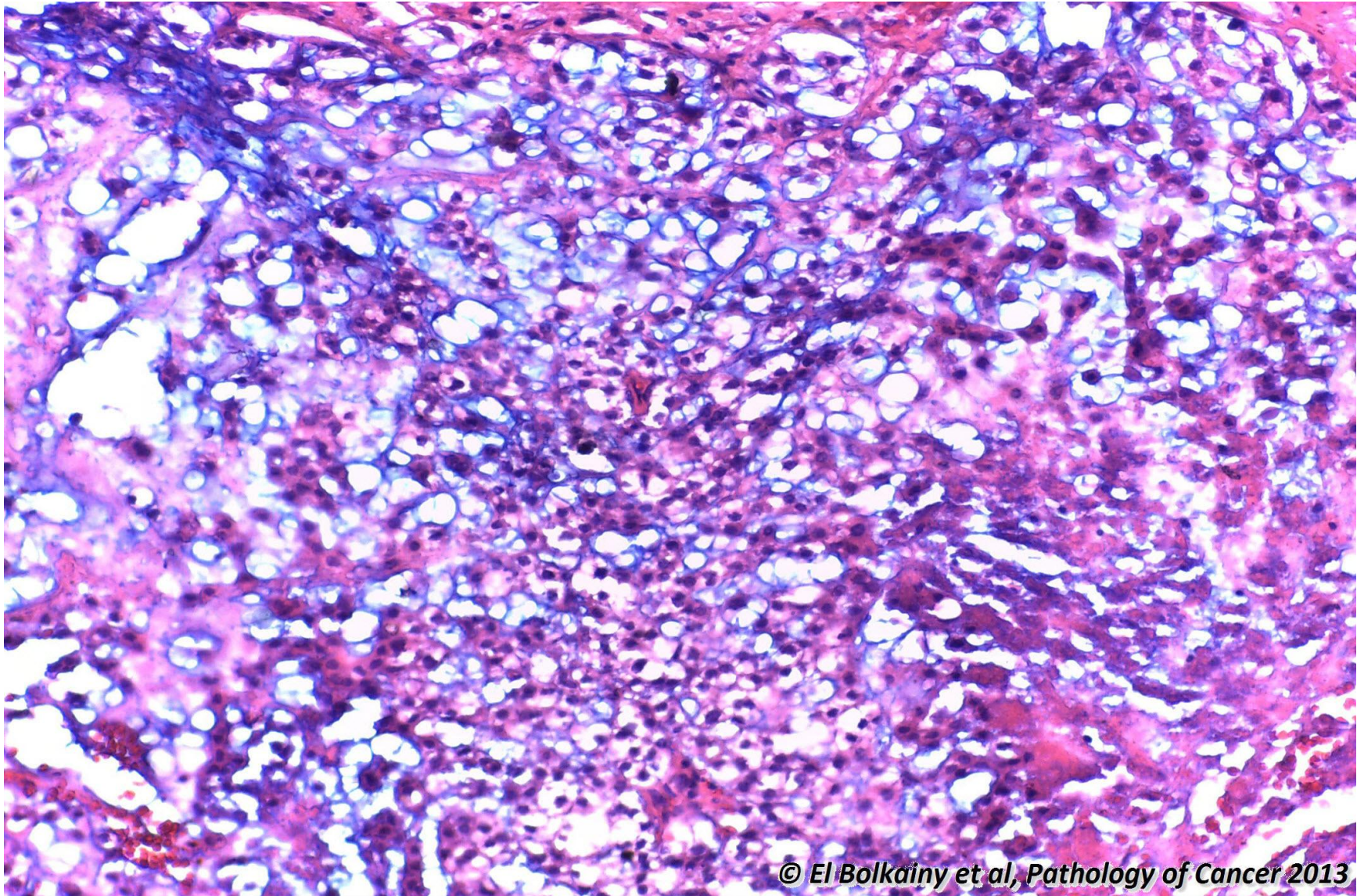
9.20 Diffuse large B-cell non-Hodgkin lymphoma (DLBCL), histology.



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**Picture 9-20** Diffuse large B-cell non-Hodgkin lymphoma (DLBCL), histology. This lymphoma type commonly affects pharynx, and may be mistaken for carcinoma. However, the association of histiocytes in the tumor favors lymphoma and immunophenotyping is confirmatory (LCA positive, cytokeratin negative).

## 9.21 Chordoma in nasopharynx, histology.

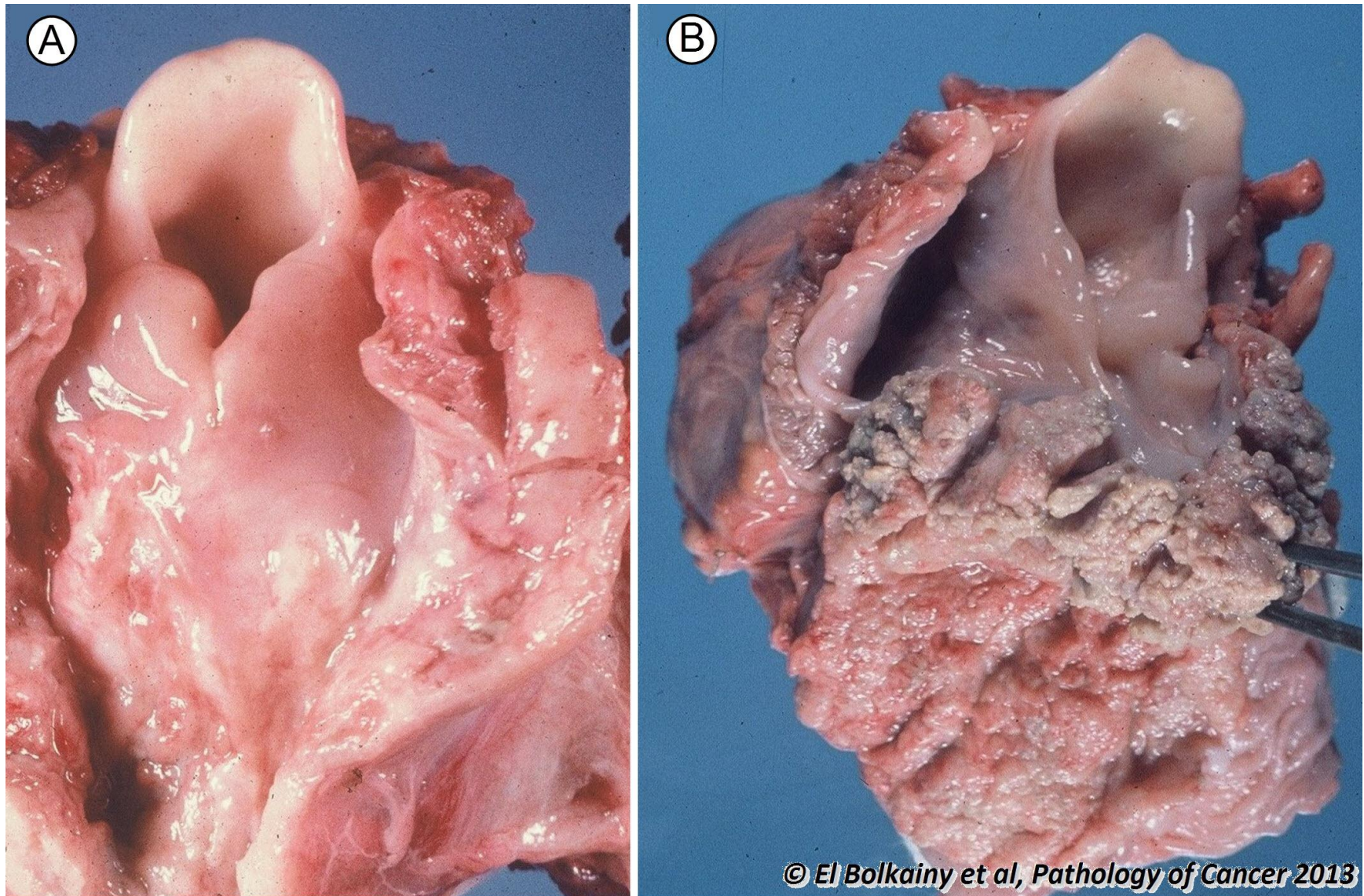


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**Picture 9-21** Chordoma in nasopharynx, histology. The presence of giant cells with eosinophilic cytoplasm containing multiple vacuoles (physaliferous cells) and myxoid stroma are characteristic. Tumor cells are immunoreactive to cytokeratin and radiographs confirm bony origin from basiocciput.



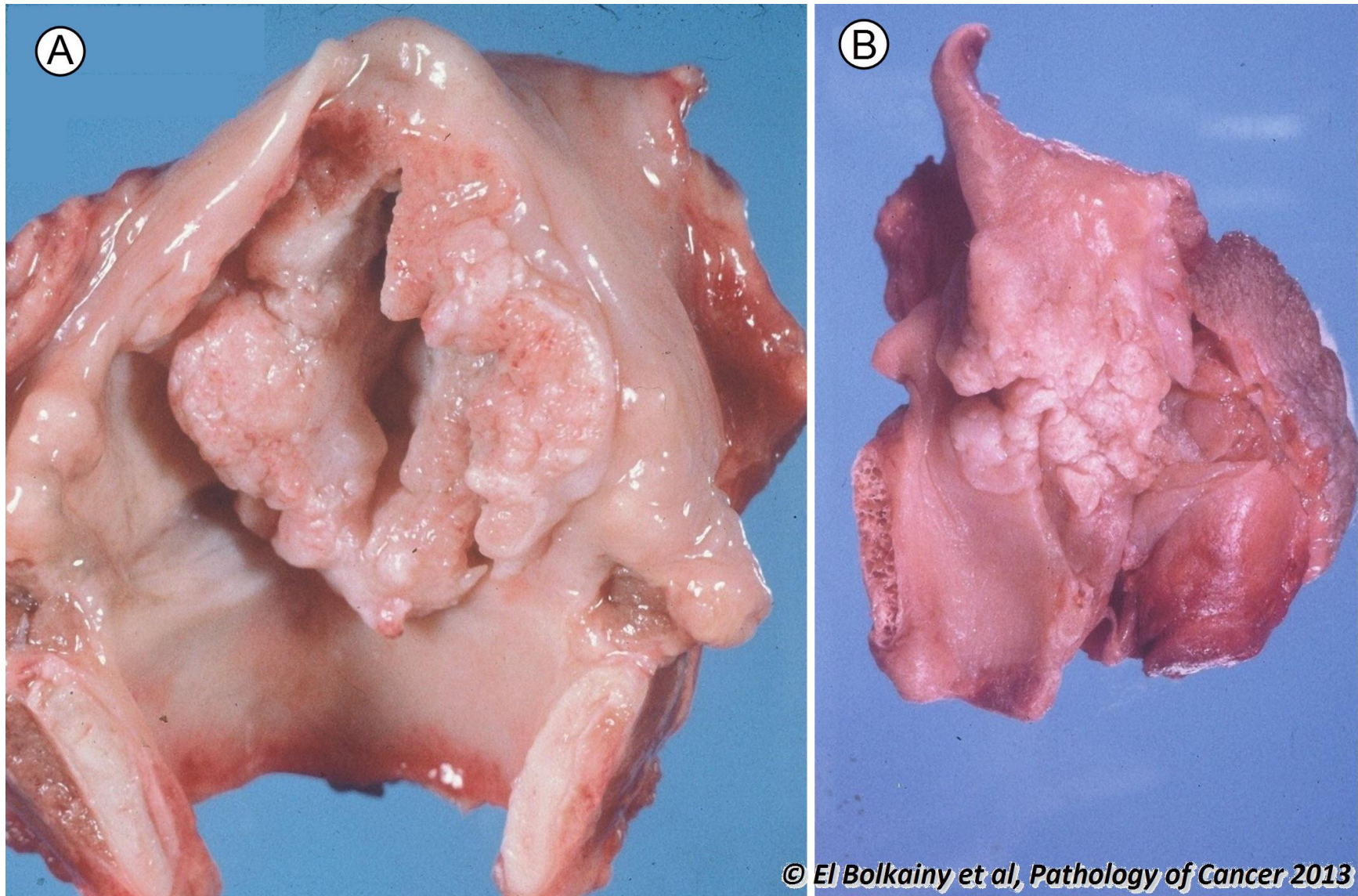
9.22 Carcinoma of hypopharynx, gross features.



**Picture**  
**9-22**

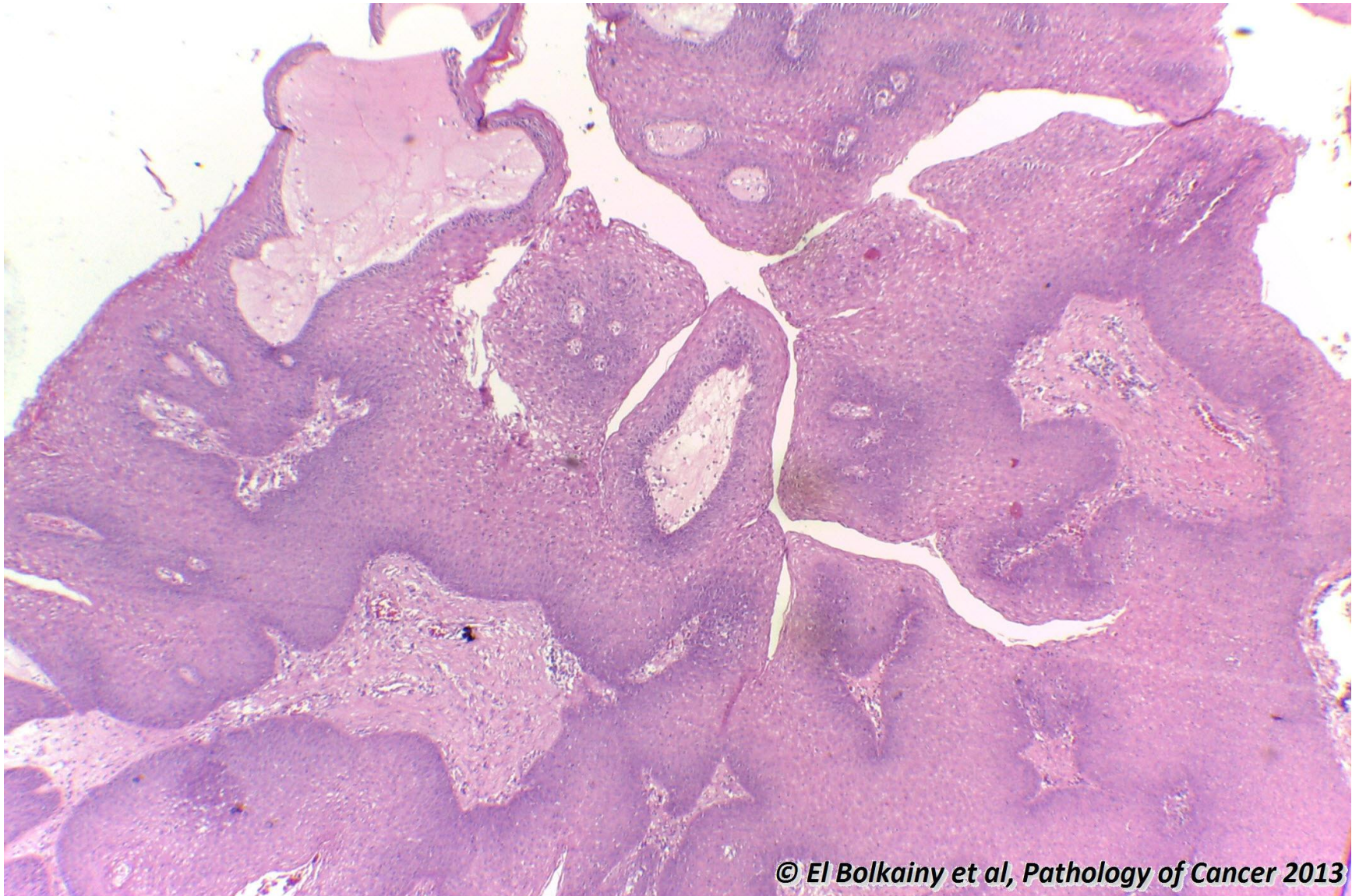
Carcinoma of hypopharynx, gross features. A Carcinoma of Rt. pyriform sinus. B Postcricoid carcinoma.

9.23 Supraglottic carcinoma, gross features.



**Picture 9-23** Supraglottic carcinoma, gross features. **A** Carcinoma of the Rt. aryepiglottic fold. **B** Tumor section showing anterior spread to involve prelaryngeal soft tissue close to the base of tongue.

9.24 Squamous papilloma of the larynx (HPV-related), histology.

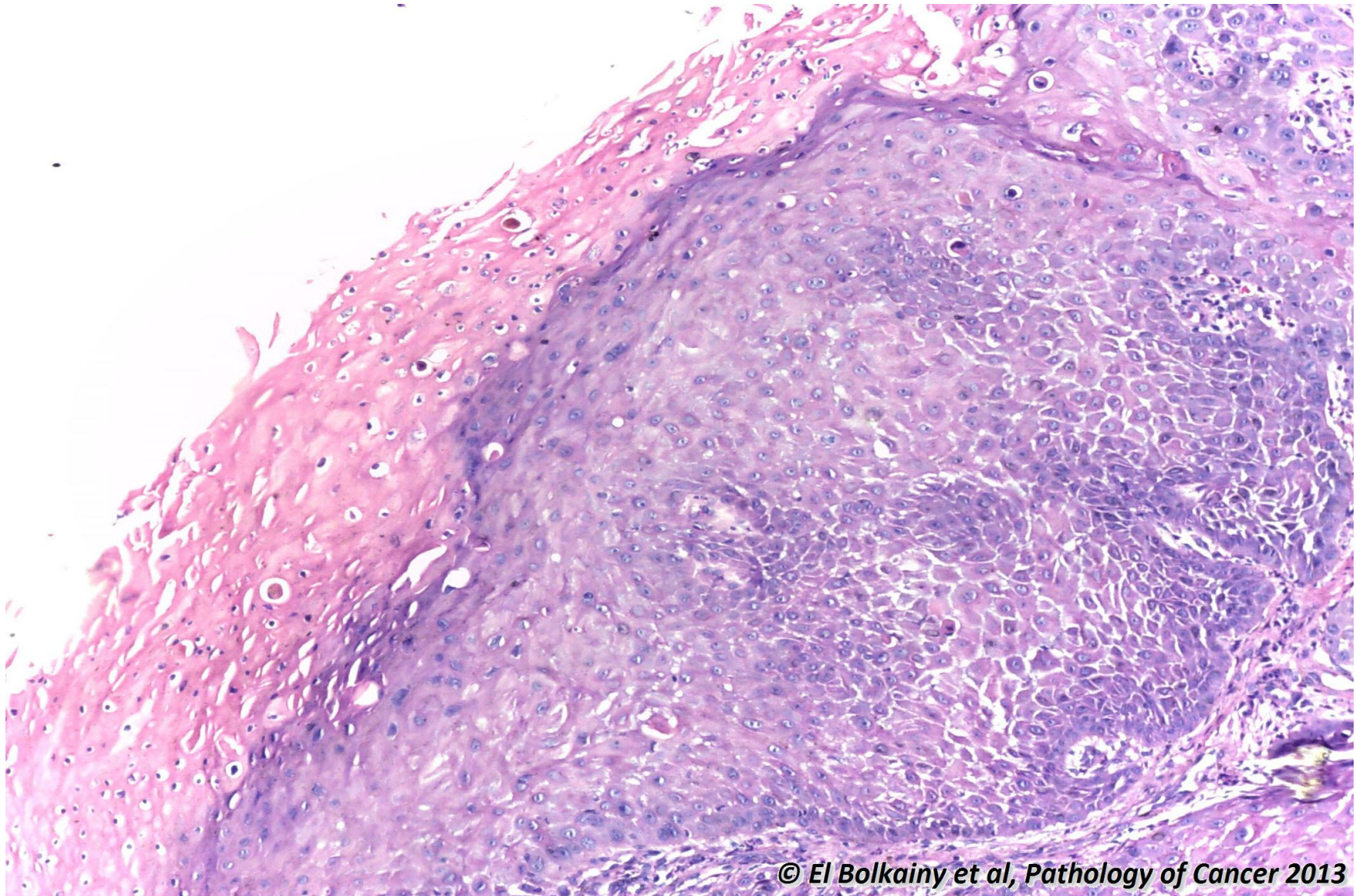


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**Picture  
9-24**

**Squamous papilloma of the larynx (HPV-related), histology.** It is composed of well-differentiated squamous epithelium with orderly maturation and a papillary exophytic pattern. Perinuclear vacuoles in squamous cells (koilocytosis) is characteristic of viral infection.

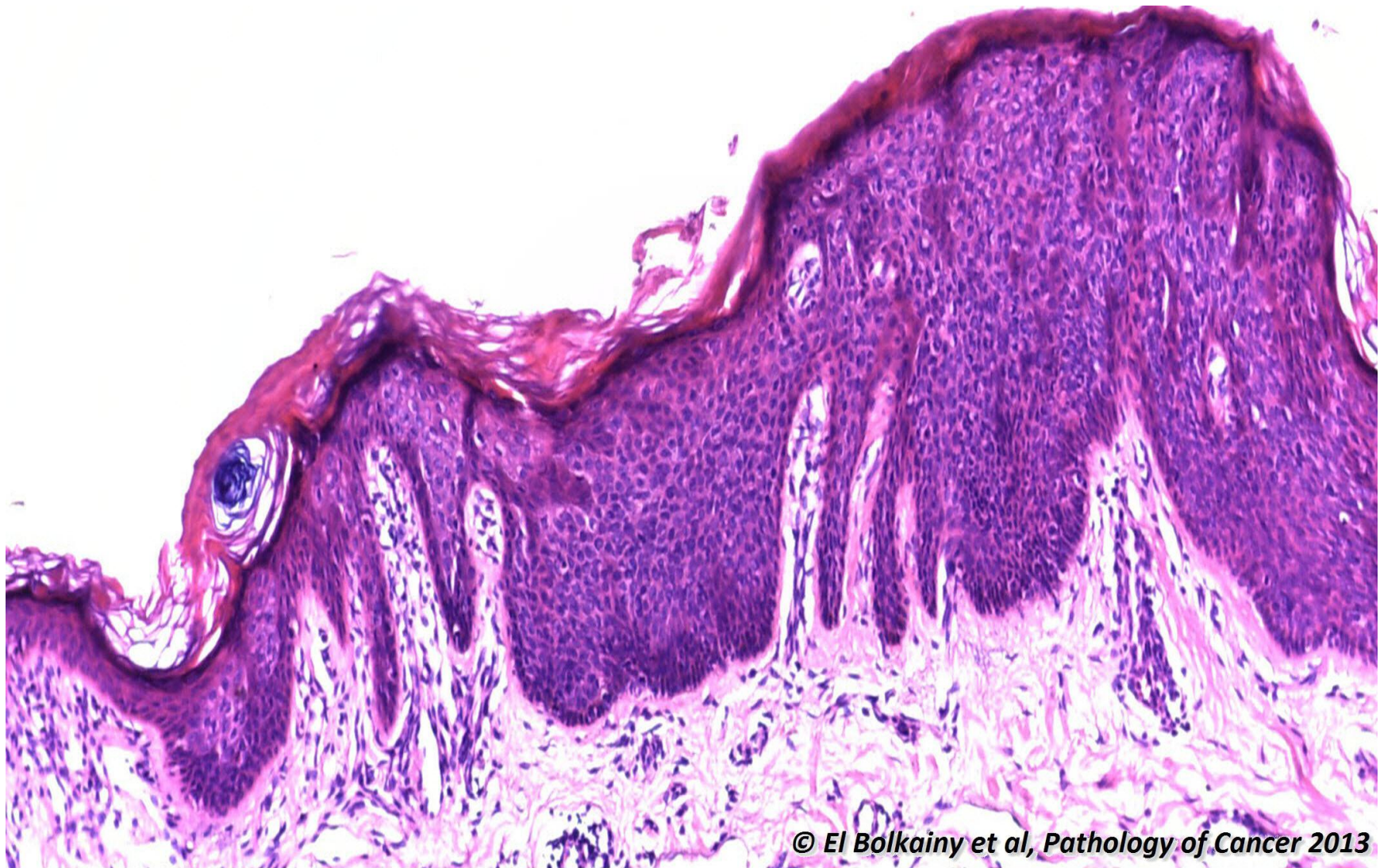
9.25 Moderate squamous dysplasia, histology.



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**Picture 9-25** **Moderate squamous dysplasia, histology.** Atypical squamous cells (prominent nucleoli and loss of maturation) are limited to the lower 2/3 of epithelium, with associated hyperkeratosis. The lesion is flat and thin (not exceeding 200 microns or 0.2 mm).

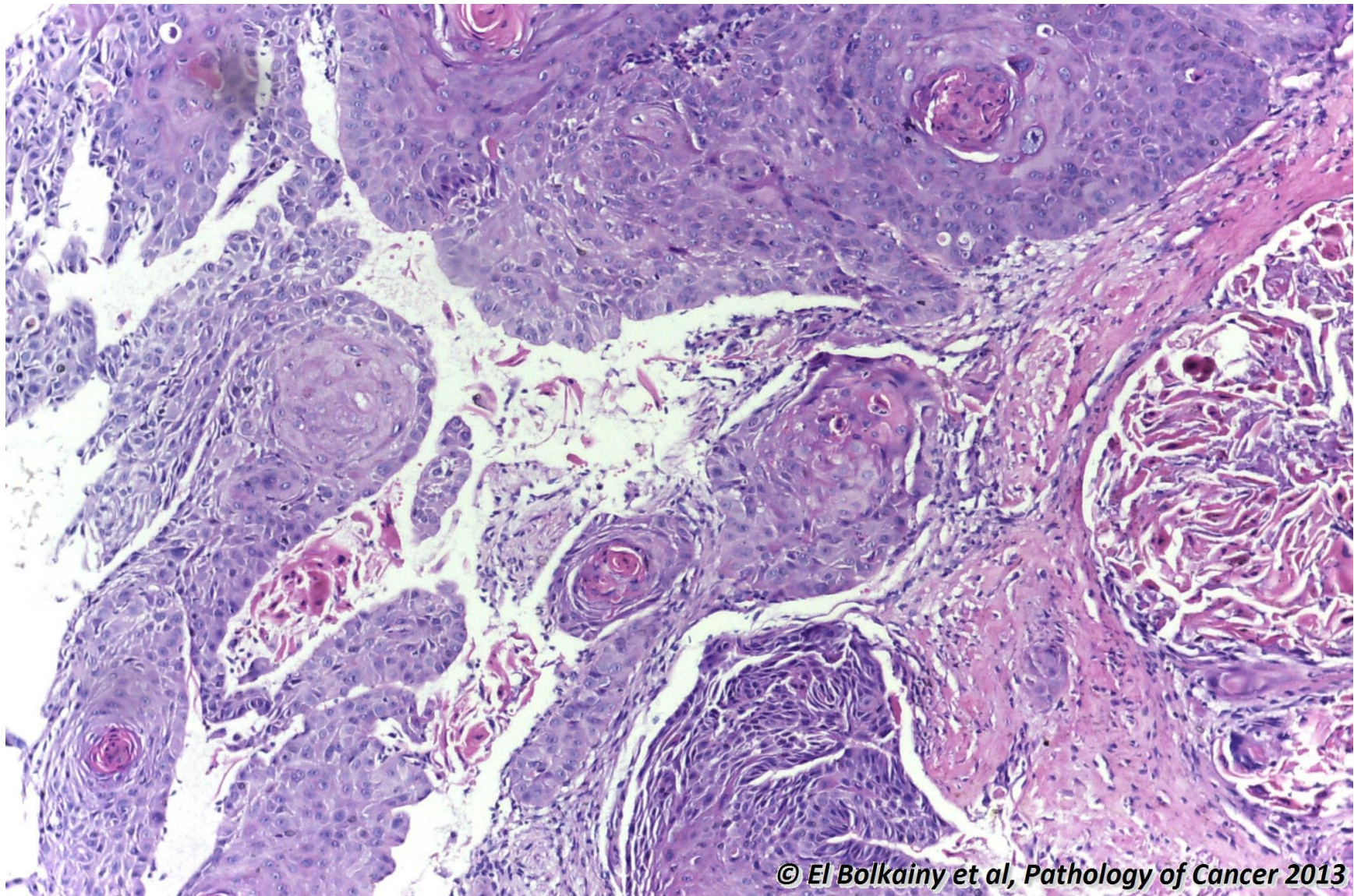
9.26 Carcinoma in situ of larynx, histology.



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**Picture 9-26** Carcinoma in situ of larynx, histology. A flat thin lesion (< 200 microns) composed of malignant cells, but, not invading the basement membrane. The entire thickness of epithelium is affected.

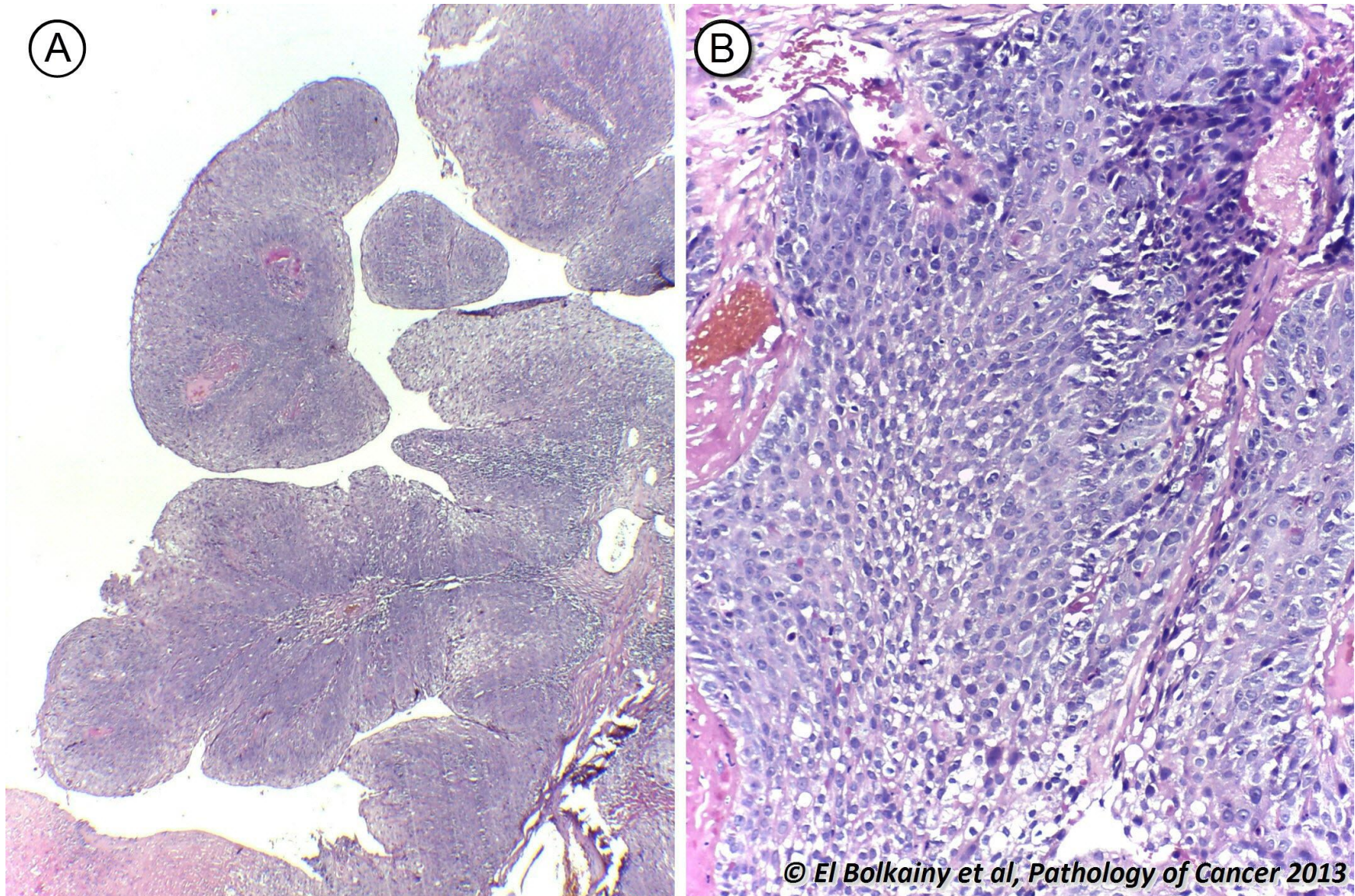
9.27 Invasive squamous cell carcinoma of larynx, histology.



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**Picture 9-27** Invasive squamous cell carcinoma of larynx, histology. The tumor (several mm in size) is composed of irregular cell groups with pointed margins and contain several keratotic cell nests. Anaplasia and mitotic activity are moderate.

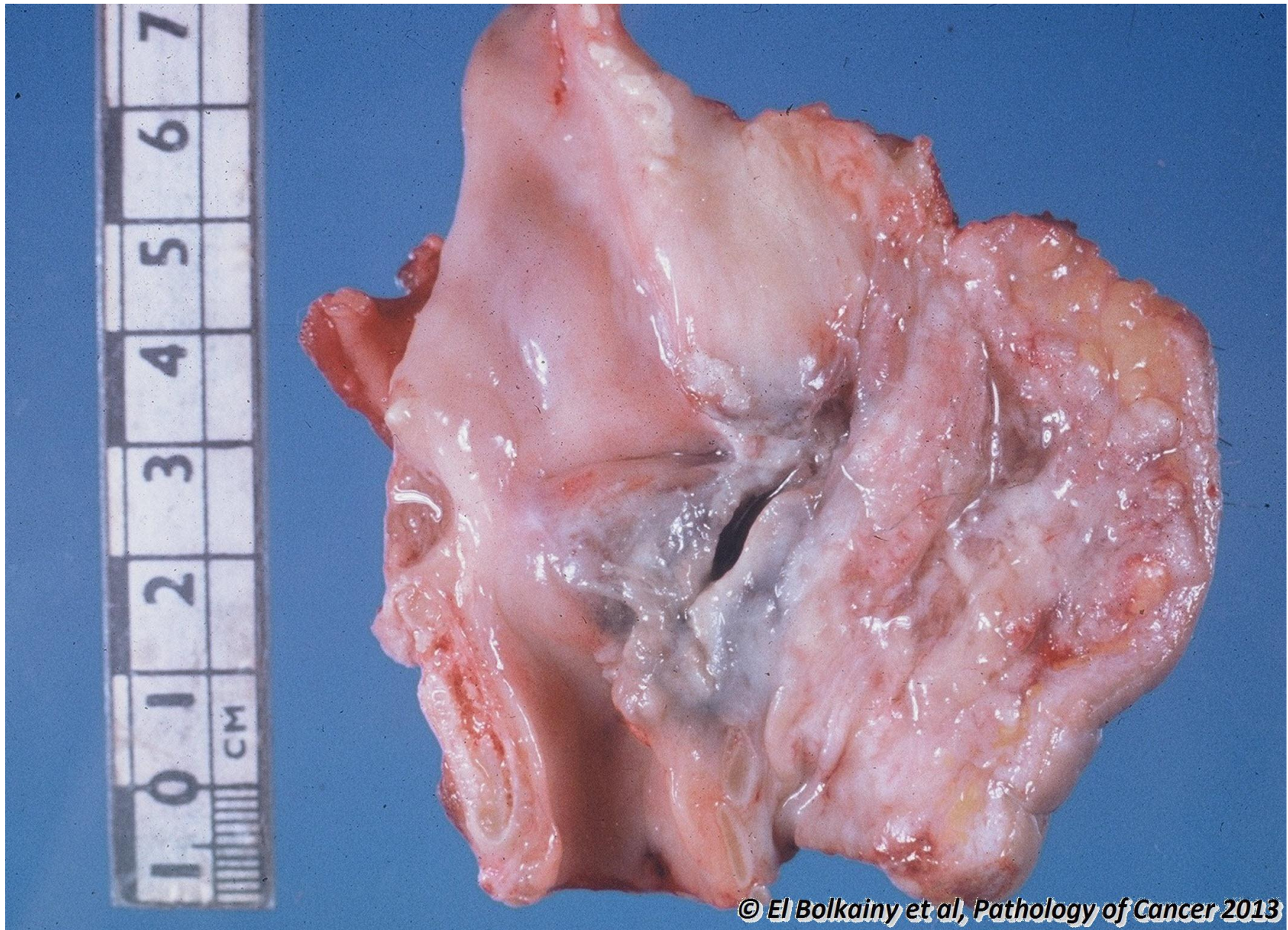
9.28 Papillary variant of squamous cell carcinoma, histology.



**Picture 9-28**

**Papillary variant of squamous cell carcinoma, histology.** In contradistinction of papilloma, there is obvious cellular anaplasia and loss of polarity and lack of koilocytosis.

9.29 Glottic carcinoma of RT. vocal cord.



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**Picture 9-29** Glottic carcinoma of RT. vocal cord. Grossly, there is invasion of thyroid cartilage with involvement of prelaryngeal soft tissue. A malignant fistula may arise.