

MINOR SALIVARY GLAND TUMOR A Report Findings of 25 Cases

N. PISHVA, M.D. A. FOROUZANDEH, D.M.D. R. HEJAZI, D.M.D.

Among the neoplasms of the head and neck, tumors arising from salivary glands are rather common and important. The review of the literatures, reveals that about 80 % of all salivary gland tumors are related to parotid glands; 10-15 % to minor salivary glands, 5-10 % to sub-maxillary, so; and less than 1 % to the sublingual glands.

Although, there existed many articles about tumors of salivary glands, but they mainly emphasized about major salivary gland tumors, and less attention has been given to minor salivary gland tumors.

A review of the series of published literature, about intra-oral salivary tumors show a common pattern for the sites, 2,3,5,7, and 9 over all findings show that about 60 % of these tumors usually occur in the area of palate and the rest in lip, tongue, floor of the mouth and bucal mucosa.

This paper is the report of the findings of the study of 25 cases of intraoral minor salivary gland tumors.

The main purpose of the study was to investigate and report an additional informations about this type of tumor. The informations include morphological appearances and classifications clinical features, and sex and age distributions of the population under study.

DATA AND METHODS OF THE STUDY:

Data for this study has been obtained from the case records of pathologic specimens of twenty five patient, with the tumors of minor salivary gland. These cases have been selected from two sources the pathological laboratories of the School of Dentistry, and the School of Medicine of Tehran University. During the five years period of the study, that is between 1967-1972, the 25 cases for this study has been selected from 19, 500 specimens of both above mentioned sources. That is, nine cases or 1 % of the total of 900 cases we received from the school of Dentistry, and the remaining 16 cases of the school of the Medicine from the total of 18, 600 specimens. Out of this number of specimen, 51 cases were tumors of major and minor salivary gland (sixteen minor and thirty five major salivary gland, including major sublinguals).

The Medical records of each patient was reviewed and all specimens were reexamined separately by each of us and final diagnosis (classified histologically according to the method of Foote & Frazell) were made during a session. The reexamination included reviewing of all slides, and study of newly cut and stained slides when indicated.

RESULTS:

Clinical Data: The cases were classified according to sex, age, location of the tumor, symptoms and physical findings. Table I. indicates the age and sex distributions of malignant and benign minor salivary gland tumors. The age ranged from 16 to 75 years. The age of majority of patients in the study (15 out of 25) were between 40 and 75 years old and the average age was 43 years. Only the age of two patient was not recorded (case 9 and 11).

There were 13 female and 12 male. The duration of disease prior to histologic diagnosis varied greatly. The benign tumors were present for one month (case 11) to 20 years (case 5). The malignant varieties were present for 2 months to 8 years. The duration of symptoms is not recorded in case 20 (Table II, III).

Table II and Table III summarize the Clinical Data on benign and malignant tumors respectively.

Table I: Age and Sex Distribution of MSGT*

Age	Male (12)			Female (13)			Total (25)		
	mg	bg	total	mg	bg	total	mg	bg	total
0-20	1	0	1	0	0	0	1	0	1
21-30	0	0	0	1	0	1	1	0	1
31-40	2	1	3	2	5	7	4	6	10
41-50	2	2	4	0	1	1	2	3	5
51-60	0	2	2	2	1	3	2	3	5
61-75	1	0	1	0	0	0	1	0	1
Not Known	0	1	1	0	1	1	0	2	2
Total	6	6	12	5	8	13	11	14	25

Table II Clinical data on benign MSGT

Case	Sex	age	Location	Size Diameter	Duration	Complaints
1	M	40	Left hard palate	3 cm	14 moth	Abscess & Mass
2	M	45	Right hard palate	2 »	18 »	Mass & Disc. in chewing
3	F	38	Right hard palate	4 »	1 yrs	Mass
4	F	40	Left hard palate	3 »	1 moth	Mass
5	F	55	H. Palate	3 »	20 yrs	Mass
6	M	60	Floor of mouth	3 »	—	Mass
7	M	46	H. Palate	3 »	4 yrs	Mass & Disc. in chewing & talking
8	F	38	H. Palate	large	2 yrs	Mass & bone Distuction
9	F	?	check	1 cm	—	Mass
10	F	50	Upper lip	—	—	Mass
11	M	?	H. Palate	2 »	1 moth	Mass
12	M	58	Upper lip	3 »	2 yrs	incr. Mass
13	F	39	Lower	0/3 cm	6 moth	Mass
14	F	35	Lower	1 cm	—	Mass

Disc. = discomfort

moth = month cm = centimeter

incr = increasing

yrs = years

MSGT = Minor Salivary gland tumor

H. Palate = Hard Palate

Table III: Clinical Data or Malignant MSGT

Case	Sex	Age	Location	Size	Duration	Complaints
15	M	50	Cheek	3 cm	6 moth	Mass & Adhesion
16	M	16	Palate, Nose and Cheek	5 »	2 »	Mass growing very fast and Abscess
17	F	60	Left H. Palatl	1 cm	2 yrs	Mass
18	M	43	»	3 »	2 moth	Mass & Destruction
19	F	40	»	1 »	2 "	Mass & Pain
20	M	33	»	3 »	—	Mass & Bone Distruc on
21	F	60	Upper lip	2 cm	2 moth	Ulcerated mass
22	F	22	Soft Palate	1 cm	14 moth	Mass
23	M	40	Cheek	2 »	6 moth	Mass and ulcera
24	F	35	Right H. palate	2 cm	3 yrs	cystic mass
25	M	75	H. Palate	4 cm	8 yrs	Mass & Disc. in swallowing & Chew.

MSGT = Minor Salivary gland tomors
 Chew = Chewin
 disc = discomfort
 H. Palate = Hard Palate

The most common presenting symptom was a painless mass or swelling. But many of the tumors had been asymptomatic and discovered incidentally during dental treatment. Pain and discomfort was emphasized in only 5 cases (20%).

A variety of other symptoms due to expansion ulceration and/or, necrotic abscess formation of the tumor was noted.

The clinical presentation of the tumor was generally a rounded well defined soft mass, which was usually not movable and painless. The size of the mass varied at the time of admission from 0.3 centimeter (cm.) to 5.0 cm. with average of 2.50 cm. Sometimes they had increased in size very slowly. Unless there were ulceration, they were covered with intact mucosa, often with a bluish cast.

The most common site was palate, sixteen cases (64%) were in this region. The incidence in other region were as follows: Upper lip 3 cases

(12 %) cheek 3, (12 %) lower lip 2, cases (8 %) and floor of the mouth one case, (4 %).

Table IV summarizes the localization and histologic diagnosis of 25 cases with their relative frequency. It can be realized that the benign tumors in our series were only pleomorphic adenoma (benign mixed tumor), while the malignant tumors included many variation.

X-Rays revealed no abnormality in the patients with benign mixed tumor except in the case 8, where it revealed boney destruction on her palate and right maxillary sinus. (64505 Farabi Hospital). Patients with malignant neoplasm showed minor to severe boney destruction and involvement of the neighboring soft tissues. Laboratory studies were of no diagnostic significance.

ANATOMIC PATHOLOGY

—Grossly no significant difference existed between the various type of tumors. They were either solid cystic and well circumscribed.

Table V shows the Pathological diagnosis of these 25 cases of tumors of minor salivary glands.

Table IV Location and frequency of the different tumors of MSG.*

Location	Benign Pleomor- phic ade- noma	Malignant pleomorphic adenoma	Adenoid Cystic Carcinom	Muco- epidor- moid Carcinoma	Acinic Cell Carcinoma	Undiff- Adeno Ca.	Total	
							No...	%
Plate	8	—	5	2	—	1	16	64%
Upper lip	2	—	—	—	1	—	3	12%
Cheek	1	1	1	—	—	—	3	12%
Lower lip	2	—	—	—	—	—	2	8%
Floor of the mouth	1	—	—	—	—	—	1	4%
Total	14	1	6	2	1	1	25	100%

* MSG = Minor salivary gland

Table V. Pathological Diagnosis of 25 Cases of MSGT.

Case No.	Sex/Age	Primary site	Histological diagnosis	Case No.	Sex/Age	Primary Site of tumor	Histological diagnosis
1	M/40	palate	Mixed tumor	15	M/50	Cheek	Adenoid Cystic Carcinoma
2	M/45	Palate	»	16	M/16	Palate	Poorly differentiated Adenocarcinoma
3	F/38	Palate	»	17	F/60	Palate	Adenoid Cystic Carcinoma
4	F/40	Palate	»	18	M/43	Palate	Adenoid Cystic Carcinoma
5	F/55	Palate	»	19	F/40	Palate	Adenoid Cystic Carcinoma
6	M/60	Palate	»	20	M/33	Palate	Adenoid Cystic Carcinoma
7	M/46	Palate	»	21	F/60	Upper Lip	Acinic Cell Adenocarcinoma
8	F/38	Floor of the mouth	»	22	F/22	Palate	Mucoepidermoid Tumor
9	F/?	Cheek	»	23	M/40	Cheek	Malignant Mixed Tumor
10	F/50	Upper Lip	»	24	F/35	Palate	Mucoepidermoid Tumor
11	M/?	Palate	»	25	M/75	Palate	Adenoid Cystic Carcinoma
12	M/58	Upper Lip	»				
13	F/39	Lower Lip	»				
14	F/55	Lower Lip	»				

BENIGN PLEOMORPHID ADENOMA (MIXED TUMOR)

There were 14 cases of this type tumor. On gross they were rounded, soft solid tumor with a smooth white capsule. They were hard in consistency with some cystic cavities. Cut surface revealed areas of solid mass, with cystic cavities and cartilaginous or mucinous appearance.

Microscopically the tumor margins were circumscribed and bordered by a thin fibrous capsule or compressed normal tissue. The tumors consist of both ectodermal and mesenchymal elements. It is for this reason that it is called mixed tumor (6) the epithelial element is in the form of sheets of cells, alveoli, cords, strands and or narrow ductlike structure frequently merging with myxo-chondroid stroma (fig 1). The cells are columnar, polyhedral, stellate, or spindle shaped and contained abundant eosinophilic cytoplasm and an oval or round nucleus. The sheets of epithelial cells sometimes revealed squamous metaplasia with granular cytoplasm was also present. (fig 2,3). In five cases cystic cavities lined by one or more layer of epithelial cells were seen (fig 4).

The stromal components were as follows:

Twelve cases revealed prominent hyalinized fibrous tissues, ten contained myxoid tissue five contained chondroid or pseudocartilaginous tissue and in five tumor all three elements were present. (fig 5,6). Tumor of the palate revealed more cellular and hyalinized stroma while those from the lip and cheek were less cellular and contained more myxoid and chondroid stroma. No osteoid, lymphoid tissue and myoepithelial cell were observed. The lumina of the ducts contained mucine in the three occasion.

MALIGNANT PLEOMORPHIC ADENOMA:**(MALIGNANT MIXED TUMOR)**

One out of twenty-five cases was of this type, that is malignant mixed

tumor. It is very rare in minor salivary gland (9-18) there were 29 examples of malignant mixed tumor among 802 mixed tumor reported by Chaudhry et al (& 7). The tumor showed areas containing structure of benign mixed tumor as well as areas of malignant changes (fig 7). Like Frable et al. We restrict the use of the term "MALIGNANT" to those lesions where carcinoma could be seen arising in associated with a definite benign mixed tumor (18) this is also in agreement with other investigator (23, 26, 30) the malignant epithelial cell were arranged in gland-like, tubular or cord-like structure with large dark and plump nucleated and scanty cytoplasm. Sign of atypism and pleomorphism among these cells were common (fig 7). No encapsulation was seen and there was definite invasion of the surrounding tissues. Mitotic figure was numerous. Necrosis and hemorrhage were present.

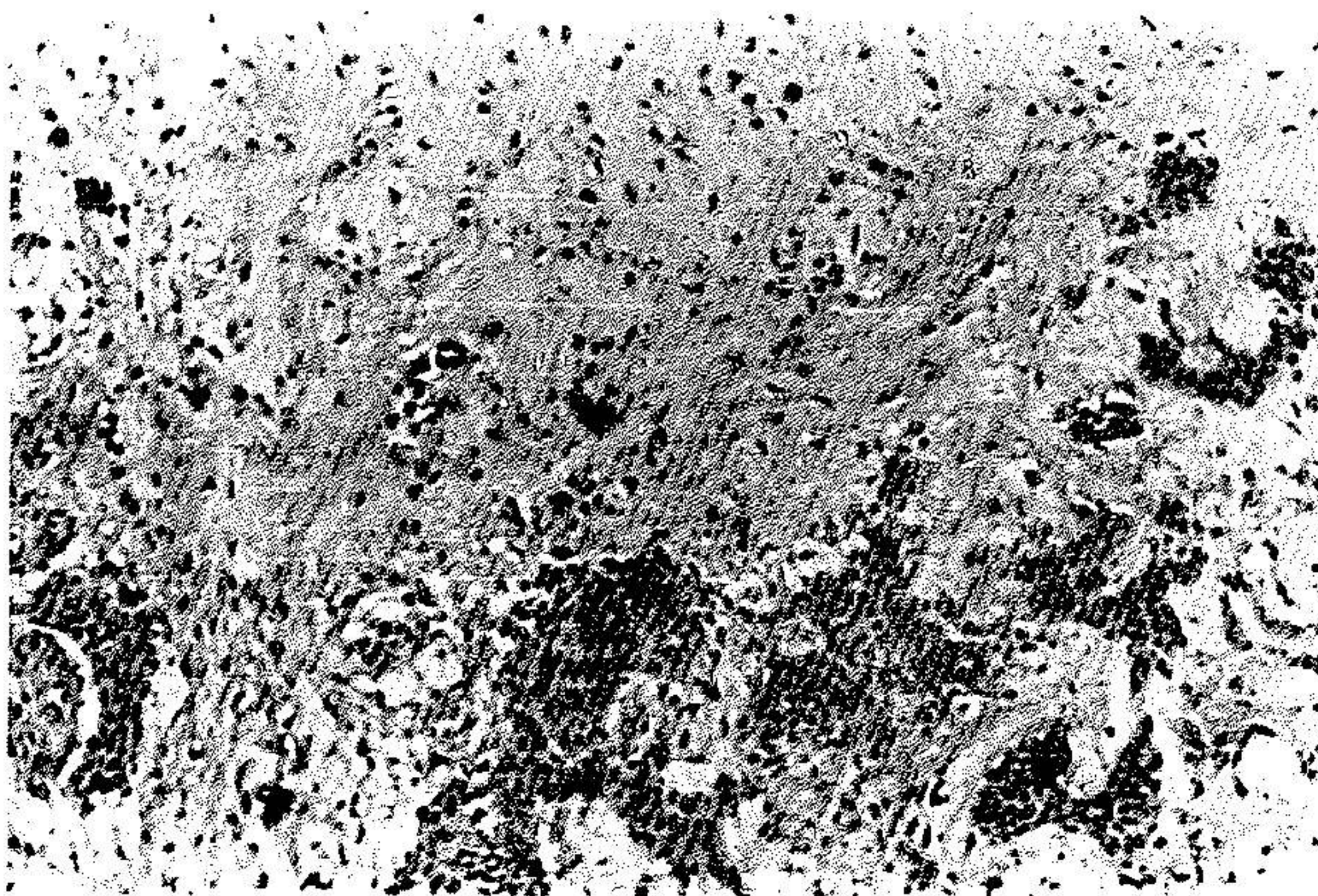


Fig (1)

Benign Pleomorphic adenoma. The epithelial elements are in various shape, ductlike formation merging with myxo-chondroid-shape, ductlike formation merging with myxo-chondroid stroma.

46 H.E X100

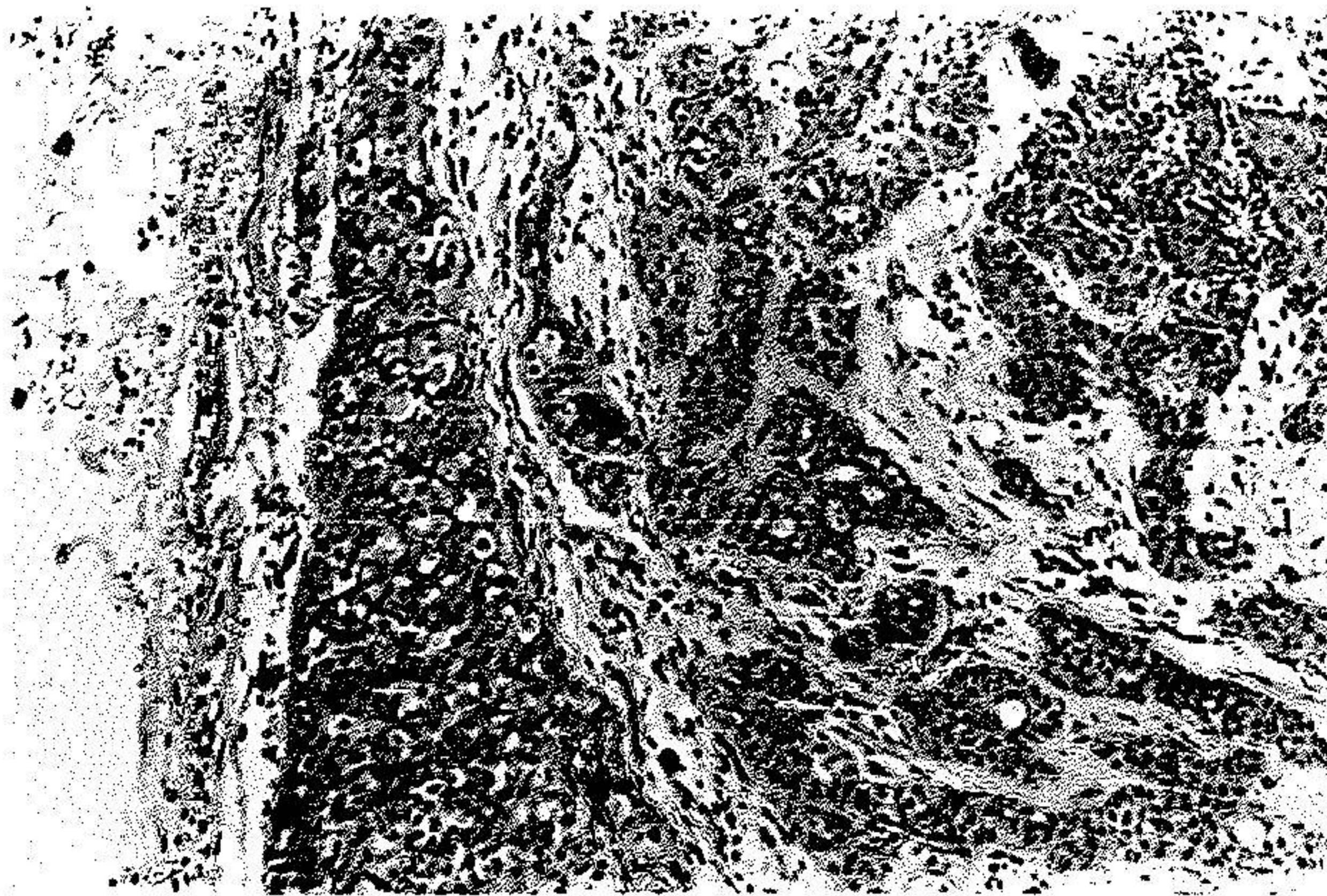
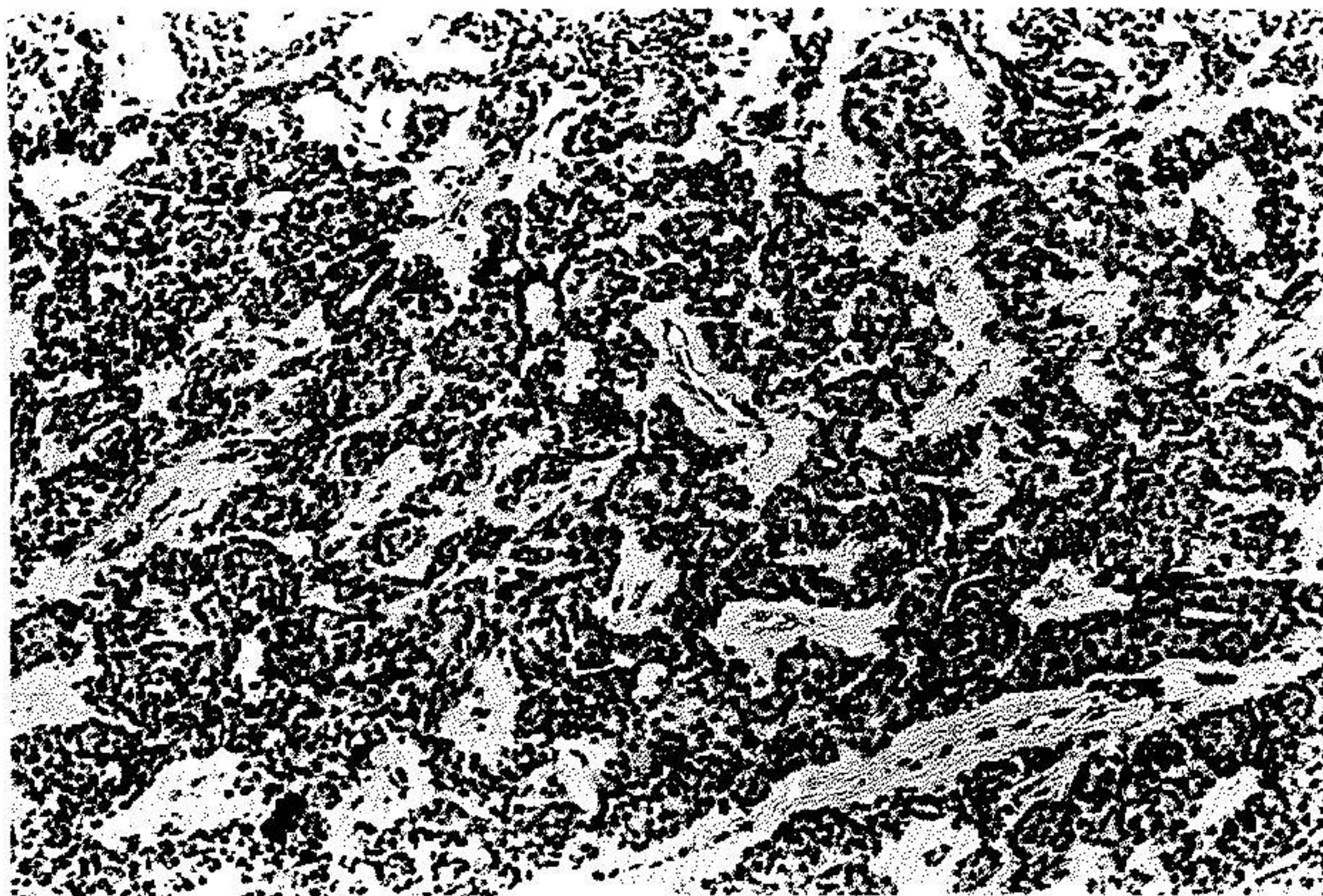


Fig (2)

Benign Pleomorphic adenoma: Same tumor as in fig 1. note basaloid structure and oncocytic metaplasia. 49 H.E X100



(Fig (3)

Benign Pleomorpaic Adenoma. Basaloid structure with hyalintized stroma. 534 H.E X × 100



Fig (4)

Benign Pleomorphic Adenoma cystic Cavities lined by one or more layer
of epithelium 69766 H.E X100

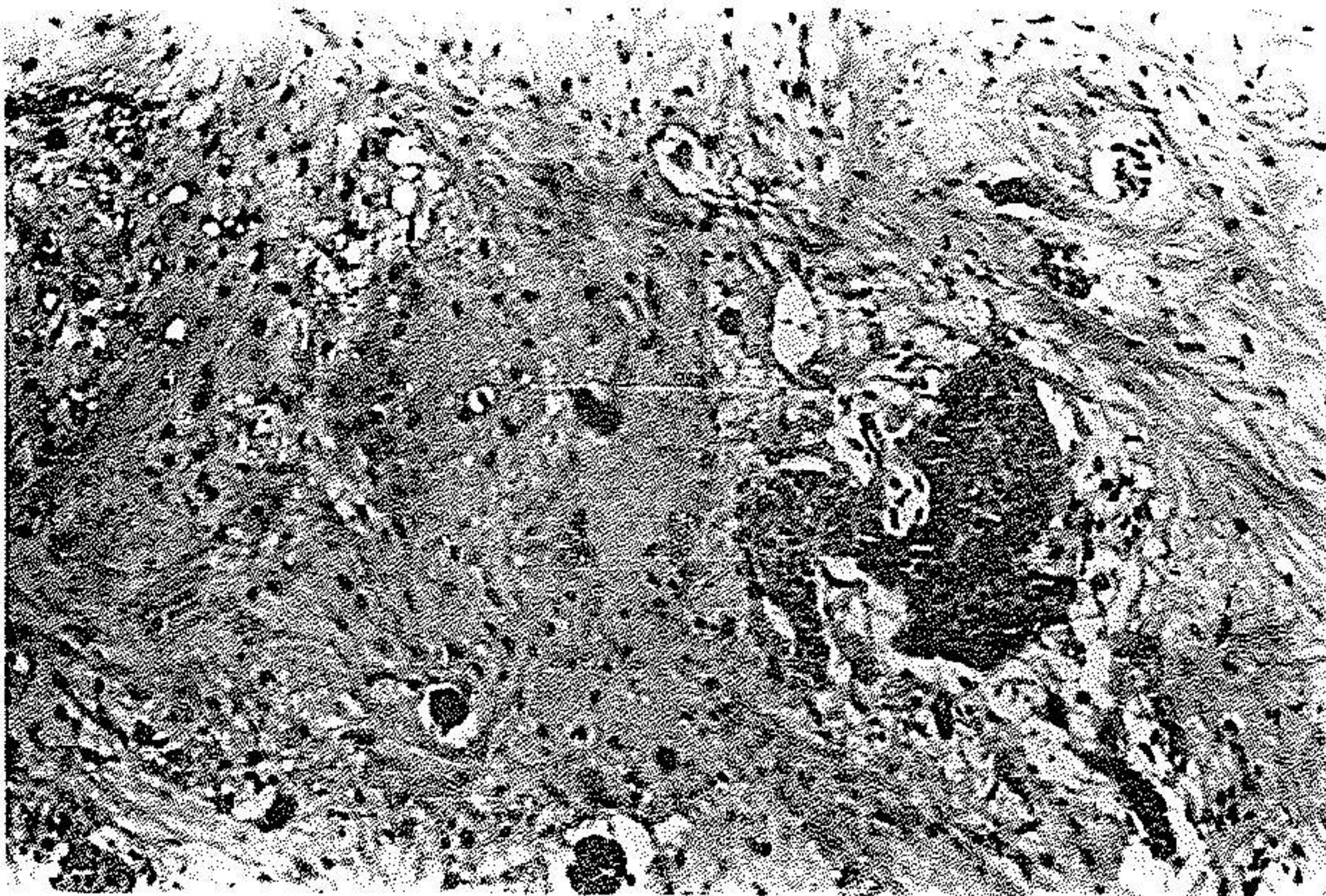


Fig (5)

Benign Pleomorphic Adenoma. Hyalinized stroma with myxo-chondroid
feature. 80157 H.E. X100

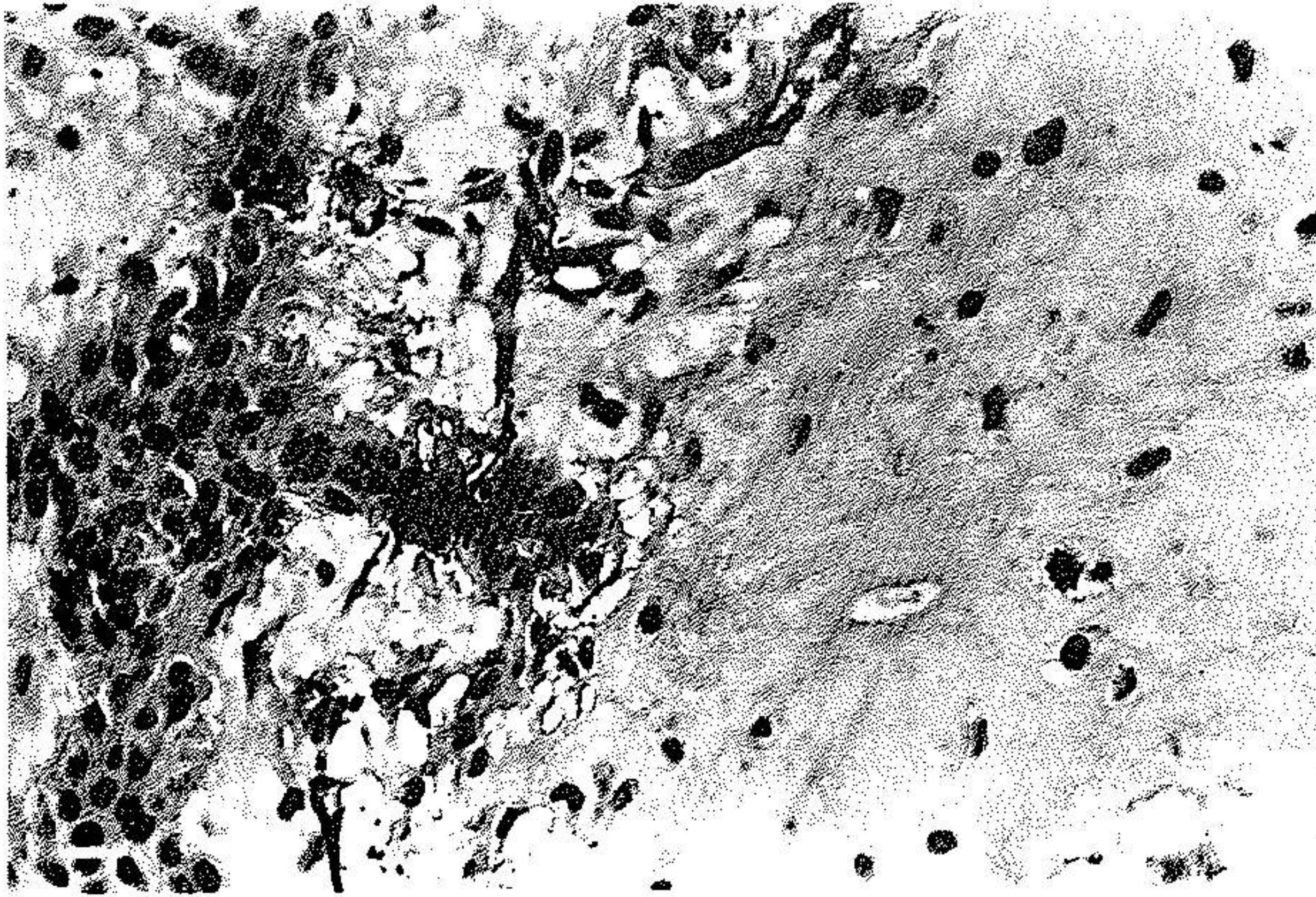


Fig (6)
Benign Pleomorphic Adenoma. Another view of the same tumor of fig 5.f

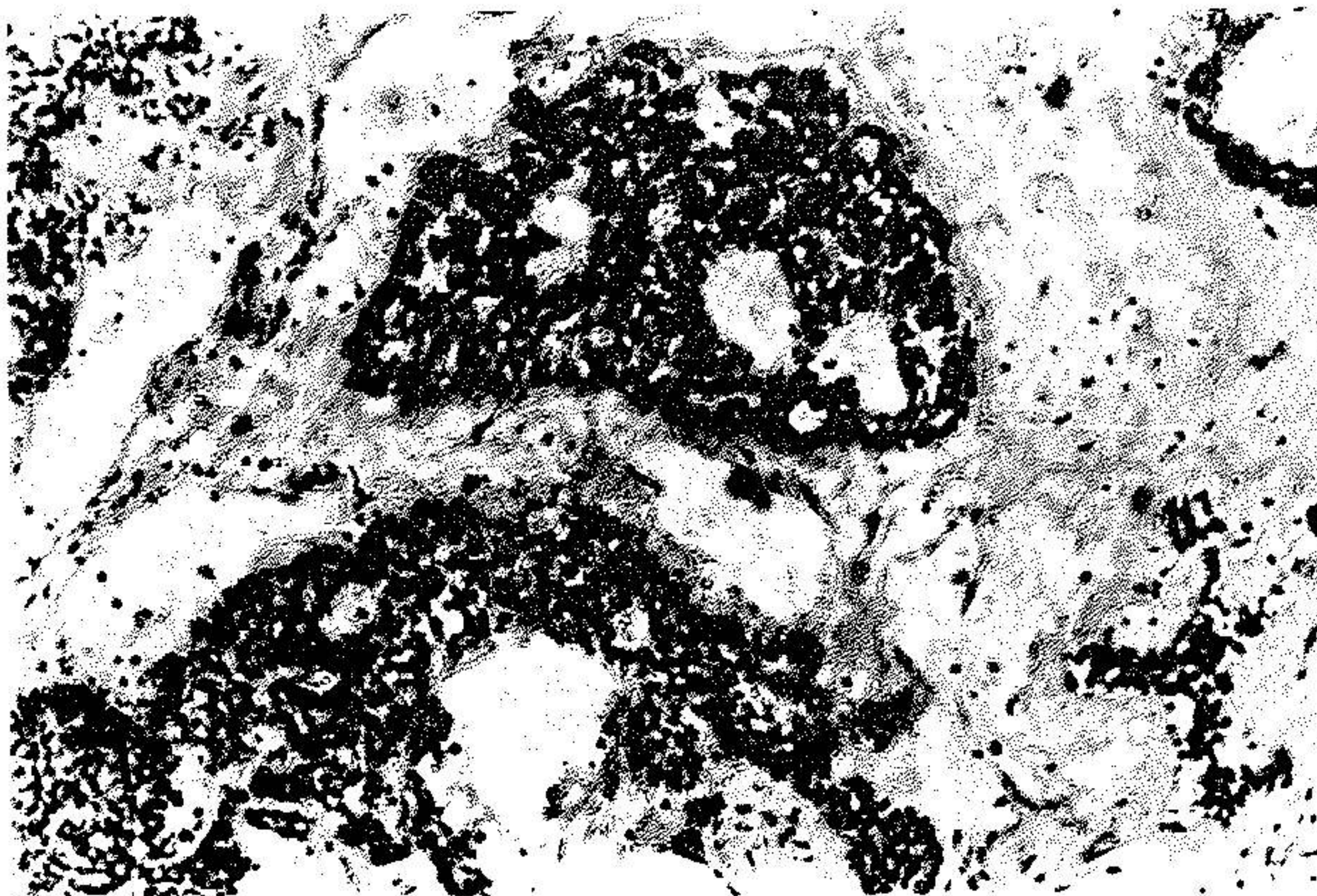


Fig (7)
Malignant Pleomorphic Adenoma, Myxomatous and epithelial component of tumor., 254 H.E X100

ADENOID CYSTIC CARCINOMA (CYLINDROMA)

This is a circumscribed but poorly differentiated infiltrating tumor. Although it is an uncommon tumor of major salivary gland, it is a fairly common in minor salivary glands (9, 18, 10). 24 % of all tumor of the palate reported by Eneroth was adenoid cystic carcinoma while only 2 % of parotid gland tumors were of this type (12, 14). It consists of anastomosing cords of small dark cell resembling basal cells. The cells have regular, round nuclei. They are arranged around tubules or in a Swiss cheese pattern of round holes (Fig. 8), which is highly characteristics of this condition. These spaces were empty or filled with granular mucinous material which was positive, by special staining such as Mayer's mucicomin, Van Gisson or PAS techniques. Numerous cysts and acellular areas we are present which contain mucine. The cells are separated by a thick fibro-hyalin tissue. While the typical cribriform or cylindromatous areas were present, other foci of predominantly Solid cellular growth with a basaloid or anaplastic appearance were also present. Signs of invasiveness towards the bone and soft tissue were seen but no mucosal ulceration occurred in our cases.

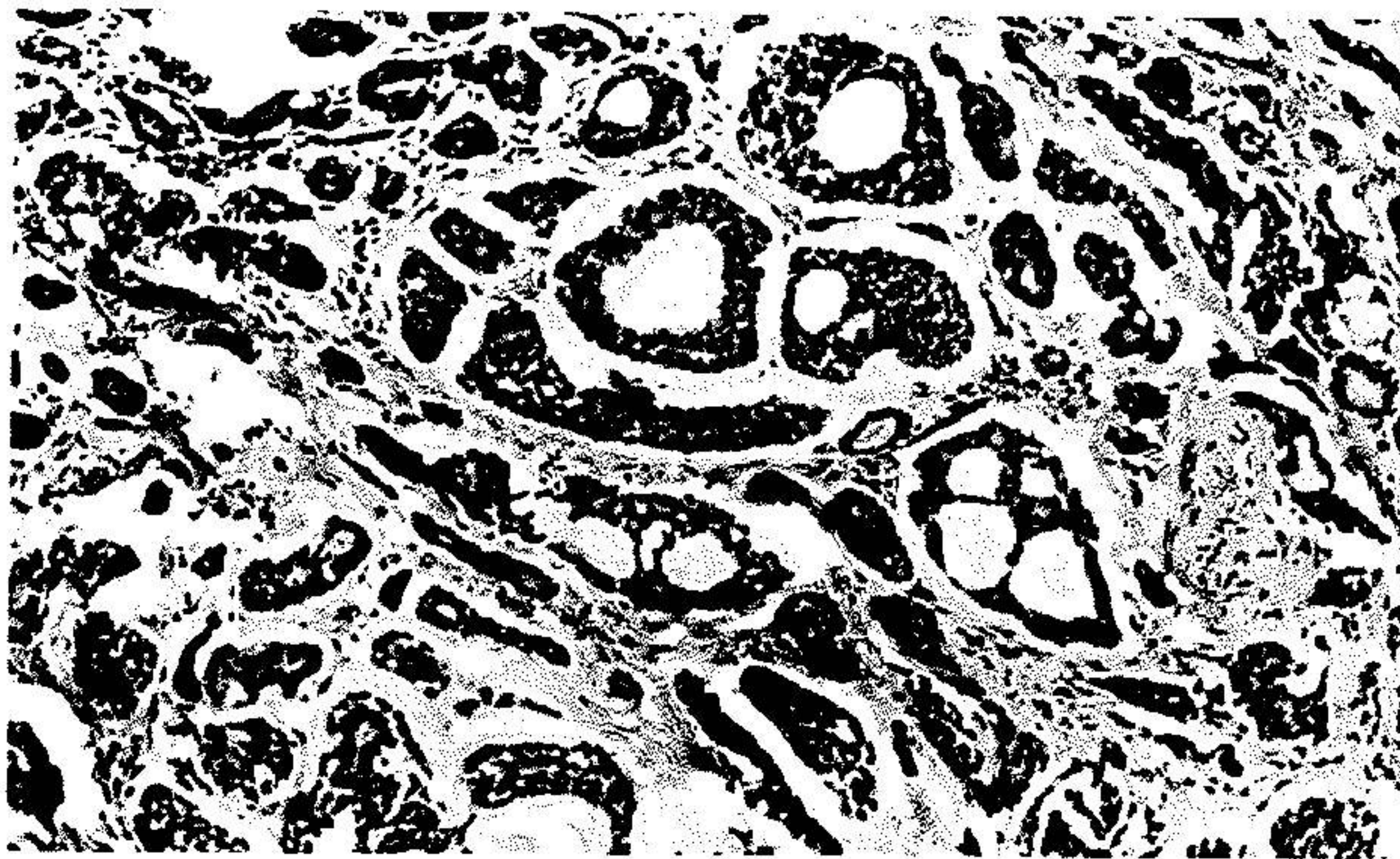


Fig (8)

Adenoid Cystic Carcinoma, Swisse cheese pattern of rounded holes arranged by epithelial cells. 79553 H.E X100

MUCOEPIDERMOID CARCINOMA

Two cases of mucoepidermoid carcinoma of the palate were encountered in this study, and both were well differentiated. The mass of epithelial cells varied greatly. There were cells which was frankly squamous and cells that were evidently mucine producing glandular cells. (Fig. 9-10). There were also various amount of intermediate cells. Both tumors were of low grade malignant according to classification of Foote and Frazell (17). The tumors contained cysts filled with mucinous material which was positive with Mucine stains. The cysts were lined by uniform epithelial cells. The nests, of squamous epithelial cells were hydropic in some areas. The Mayer's Mucicarmine and PAS staining revealed positive droplets in mucoid cells. There were lymphocytes and plasma cell infiltration in the stroma.

ACINIC CELL ADENOCARCINOMA

In one case of acinic cell adenocarcinoma of the upper lip, masses of neoplastic clear epithelial cells were lobulated by fibrous connective tissue. The location of the tumor were mainly submucosal but deep invasion was also seen. The cells were large rounded or polygonal with abundant granular light Basophilic cytoplasm and small darkly stained nucleus resembling the acini cell of the salivary gland. There were cells with large cytoplasmic vacuoles filled with Basophilic material (Fig. 11).

The arrangement of the cells were in tubular, duct like, cords, papillary and cystic in structure. The surface epithelium was intact. This is a low grade malignant salivary gland tumor and fairly uncommon (7).

POORLY DIFFERENTIATED ADENO CARCINOMA:

In a 16-years old boy there was a mass in his soft palate and revealed histologically a peculiar pattern of indifferentiated cell. The tumor contained large amount of cells with scanty cytoplasm and small hyperchromatic nucleous which were fairly monomorphic. In some areas they revealed cord-like of glandular structure, bence the name of poorly differentiated

adenocarcinoma has been used. (Fig. 12-13). Numerous atypical mitoses were present. Invasions to the nose, cheek and neighbouring tissue was present.

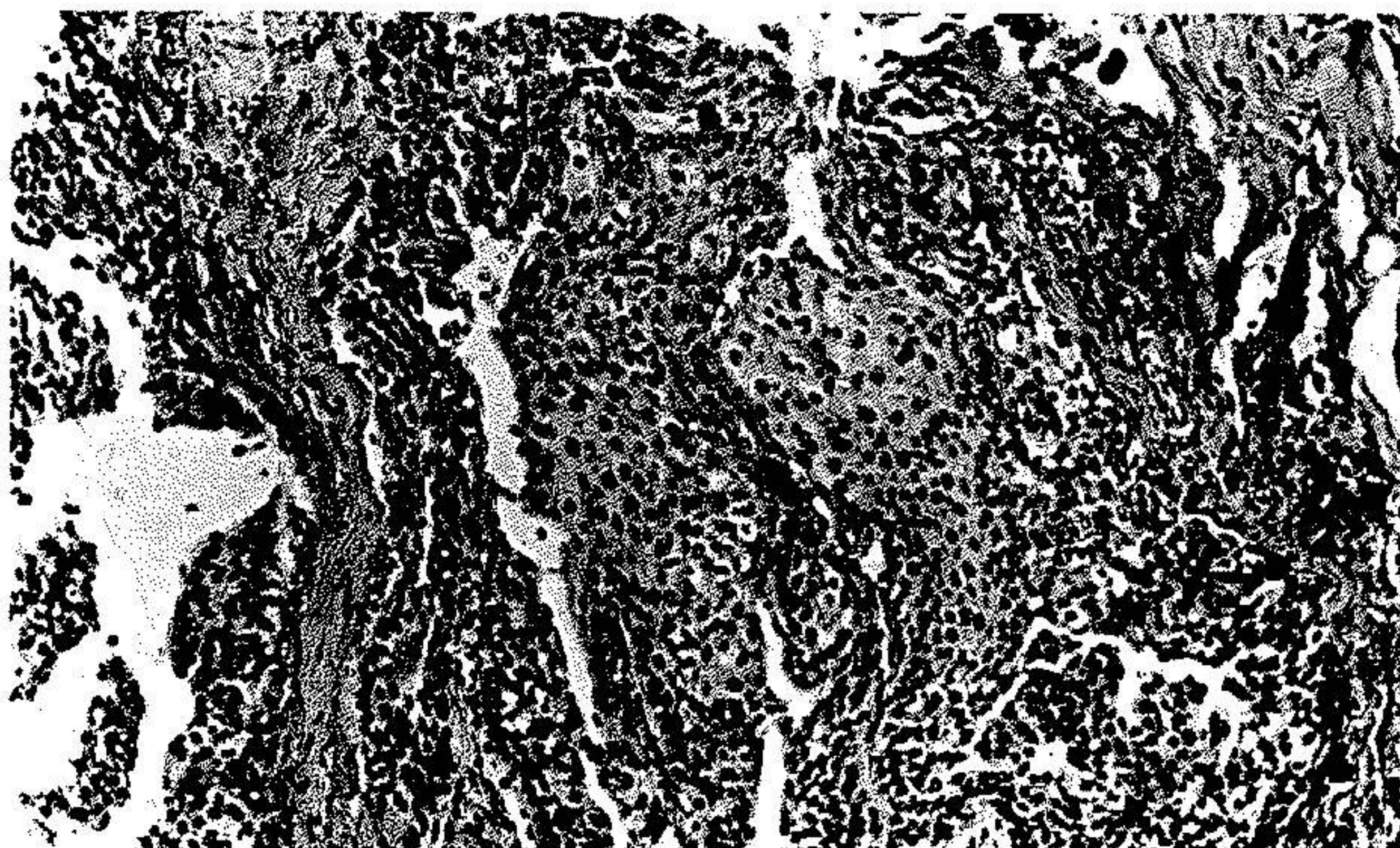


Fig (9)

Mucepidermoid Carcinoma, There are cells of squamouse pattern,
Mucin producing cells and intermediate cells 890 H.E X ×
890 H.E X × 100

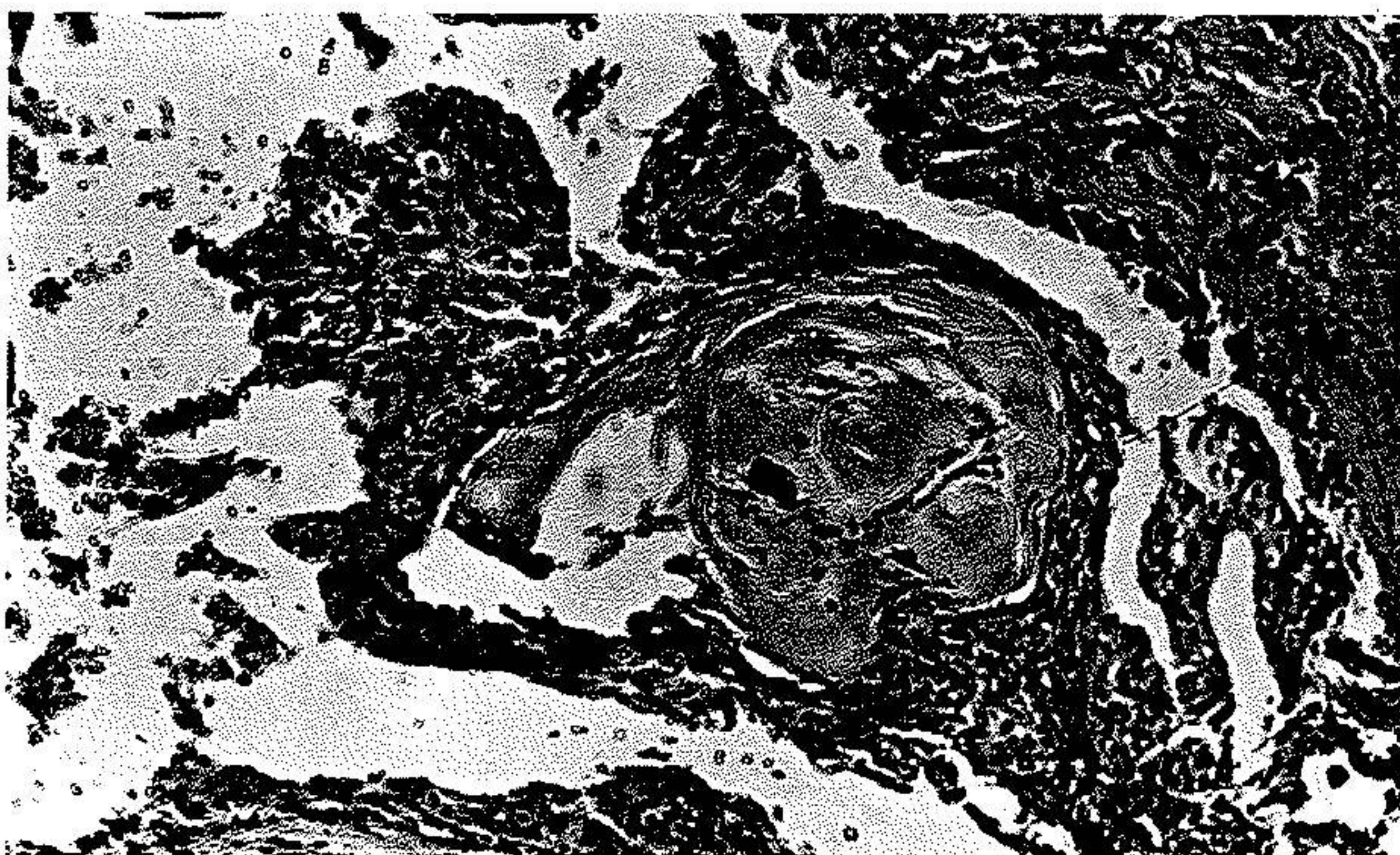


Fig (10)

Mucoepidermoid Carcinoma, Cystic cavities containing mucinous substance. 740 H.E H.E X100

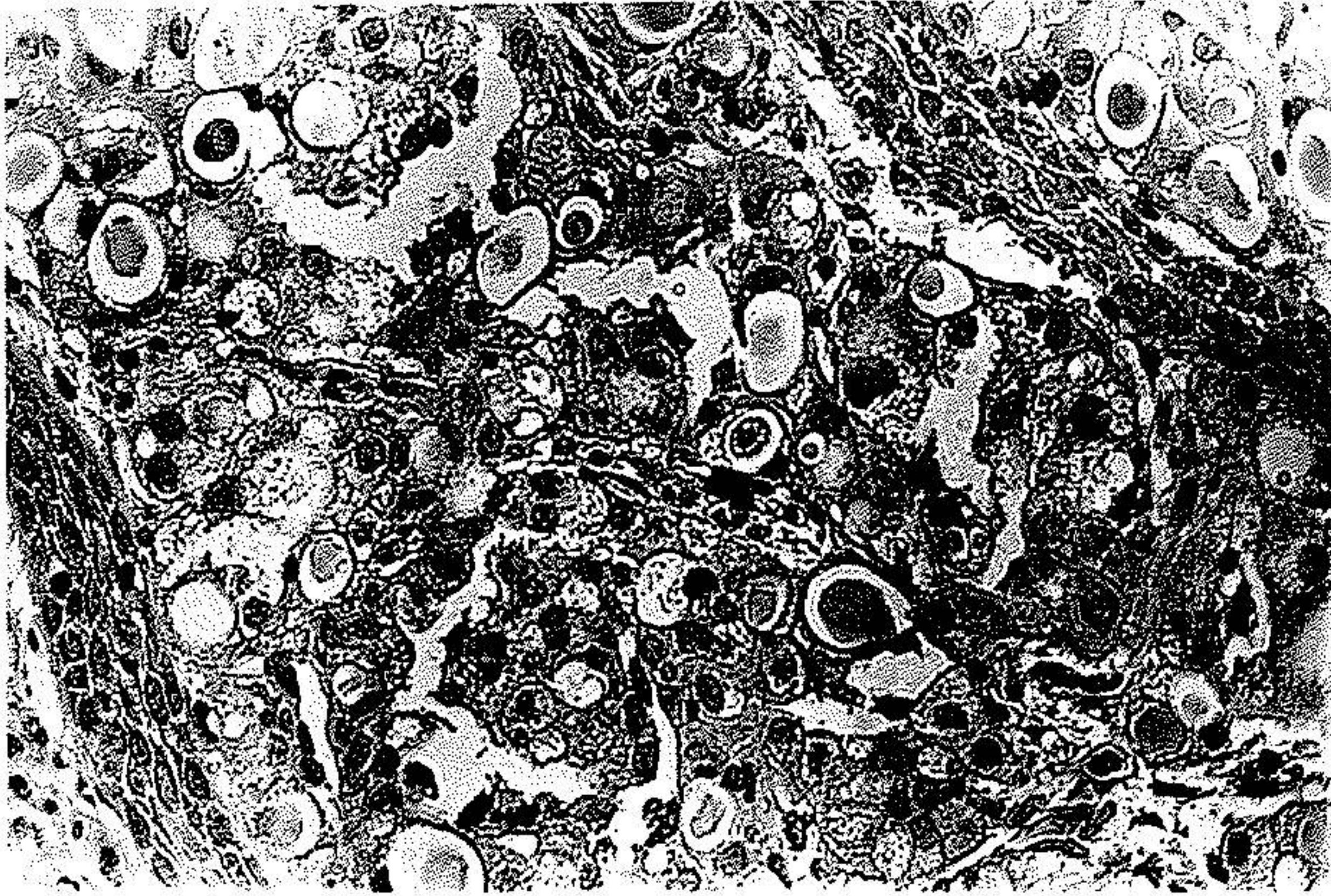


Fig (11)

Acinic cell adeno carcinoma. There are cells with layer cytoplasmic vacuoles filled with large eosinophilic material. 636 H.E X100

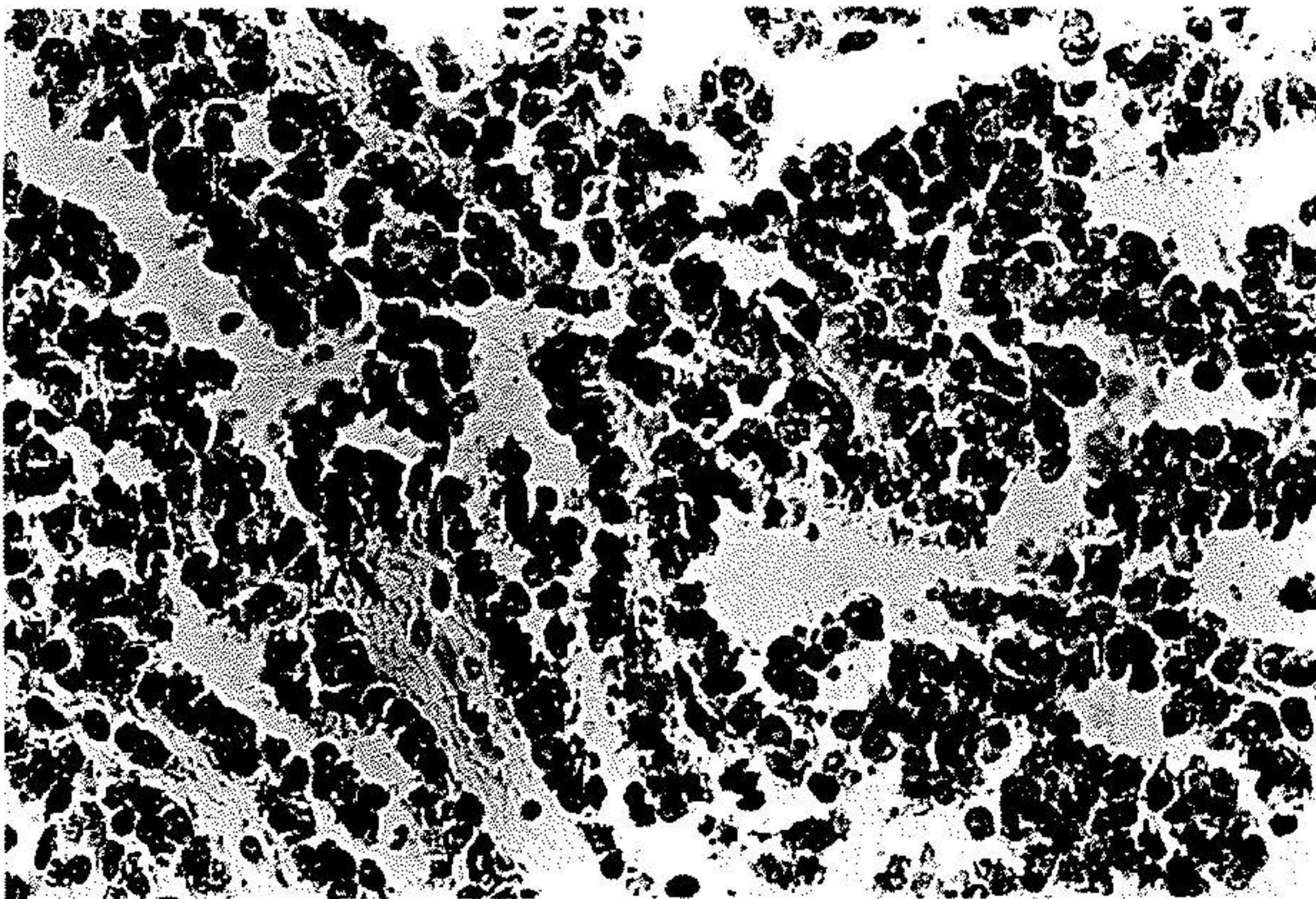


Fig (12)

Poorly differentiated adenocarcinoma. There is Papillary structure and gland like pattern 70144 H.E X100

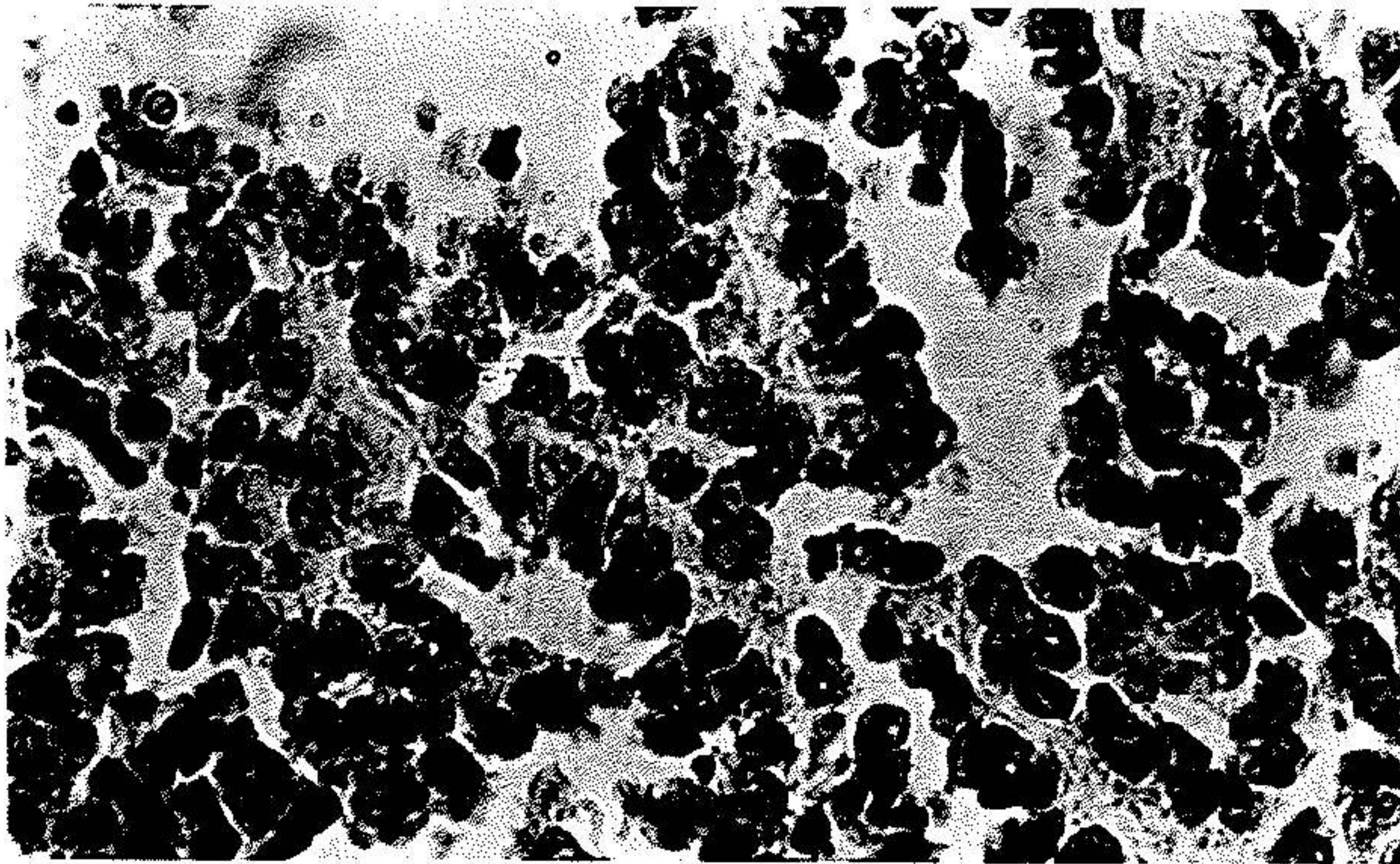


Fig (13)

Poorly differentiated adenocarcinoma. Another field of the same tumor as in the fig 12.

DISCUSSION:

Both the major and the minor salivary glands develop as buds of oral ectoderm. Over 400 Minor salivary glands are wide spread, being scattered over the lips, buccal mucosa, palate and tongue, of which approximately 150-200 are located at the soft palate. Additional histologically identical glandular elements are demonstrable interalia in the nose, paranasal Sinuses, the nasopharynx, the tonsils, epiglottis and the larynx (2/3/5). Pure serous glands are seen about the circumvalate papilla (Glands of Von Ebner), pure mucus glands, in the palate and base of the tongue (Weber's gland). All others are of the mixed type. Their secretion, the saliva, flow to the mouth. Despite, the variability and abundance of minor salivary glands, tumor arising from these glands are rare, and its occurrence account for about 18 % of all Salivary gland tumor (15).

Vellions and Davidson accounted 17 % of all tumors arising from salivary gland are of minor's gland, (31) according to Dockerty et al, at the Mayo clinic during the 18-years period. (1945-1962). Only 45 primary intra-

oral glandular tumors were encountered (10) Bergman reviewing numerous published reports stated that about one tenth of all neoplasm of salivary gland are of minor salivary gland (3). However this pattern is contrary to our finding that tumor from minor salivary gland comprise 40% of all salivary gland tumor. The reason for this difference is not clear. Although the number of cases of both major and minor Salivary glands in our study is not statistically significant.

Table VI indicates the incidence of tumor both in major salivary gland (during this five years study. (1967-72).

Table VI. Frequency of Salivary Gland Tumors among 19500 surgical specimens.

Salivary Gland	Benign Tumor	Malig Tumor	Total No.	%
Major	24	11	35	58,3%
Minor	14	11	25	41,6%
Total	41	22	60	100.%

*25 Cases out of 63 salivary gland tumors are related to minor salivary gland 39.6%

Chaudhry et al in 1961 gathered 1320 cases of intra-oral Salivary glands tumor from English literature and added 94 cases of their own. 60 (sixty) percent of these cases were benign and the remaining forty percent were considered malignant neoplasm. (7).

The incidence of malignancy of interaoral minor salivary gland in our series is 44% (11 malignant tumor out of 25 tumors). Bergman indicated that the reported malignancy varies from 13% to 90% (3) according to Frable et al the reliable one is about 50% (18). This difference, also can be realized among the different tumor in the location.

Table VII compares the result of three published series and our findings.

The most common site of origin of the tumor of the MSG in the present series corresponds to that reported in the literature and confirmed that the palate is the site of predilection. Salivary gland tumor in the palate is the

most frequent tumor. Hejertman et al histologically reclassified 383 tumors of palate, and they reported that salivary gland and epidermoid carcinoma constitute the two large group with 170 and 123 respectively (21).

The tumors of the palate were located mainly in the left side of the palate and the reason for this is not known. The glands in palate scattered both side of the medium line and the central part is free from salivary gland, hence, no tumor is reported from this location. This is not true for the soft palats.

Most other series indicate that tongue to be second to the most common location for the MSG tumors, this study does not confirm this and like crocker's Series no cases of malignant glandular tumor on the tongue was recroded.

The upper lip and lower lip each are the second most common location in this investigation. This is not in agreement with some other published series (3, 18), but corresponds with chaudhry, et al and Dockerty et al (7, 9, 10). Bergman indicated that all tumors of labial mucous glands were located in the upper lip (3), and Frable emphasized that benign mixed tumor is very rare in lower lip (18) Benign tumors in the lips in our series were mixed tumor. Dockerty and Staut do not accept all mixed tumors reported in this location and mentioned that because of the mucocutaneous location of the lips some of these mixed tumor may be of sweat gland origin (10, 29). Therefore we distinguished our ceases of mixed tumor of the lip from those of skin. Stout et al reported that 7 out of 29 mixed tumors of the upper lip and 6 of 14 in the cheek were of skin origin (29), regarding to Sex incidence benign tumors are more common in female, but the malignant type is seen more in men. Table VIII shows that 54.5% of all malignant tumor in this series were in male, although this findings is corresponded to the other reported series, over all, there is no apparent difference in regard to sex distribution (10). Brown stated that they are more common in woman than in men and are more often detected in patient between 40 and 60 years of age (5).

A clear distinction between a benign mixed tumor and malignant one present a problem in histological manifestation. Mitosis is not reliable since they may be very few in malignant and numerous in benign mixed

tumors. There was single case of malignant mixed tumor in the cheek in a 40 year old male in our series.

According to our finding pleomorphic adenoma is the most common benign tumor and adenoid cystic carcinoma is the most common malignant tumor. (Table IV). This finding is compatible with other series (7, 10, 18, 23).

Most tumors of MSG in all series are of benign mixed type and this tumor were the only benign tumor in this series. The epithelial component

Table VII. Comparative incidence and frequency of histologically different tumor in minor saivary glands.

Tumor	Luna et al (23)		Crocker et al (9)		Frable et al (18)		Present series.	
	No.	Percent	No.	Percent	No.	Percent	No.	Percent
Benign Mixed Tumor	13	19%	23	60.5%	42	57.6%	14	56%
Adenoid cystic Ca.	33	48.5%	2	5.2%	15	20.5%	6	24%
Mucoepidermoid	9	13.2%	9	23.6%	11	15%	2	8%
Malignant Mixed Tumor	8	11.7%	—	—	3	4.1%	1	4%
Others	5	7.3%	4	10.4%	2	2.7%	2	8%
Total 204 Cases	68	100%	38	100%	73	100%	25	100%

Table VIII - Percent Distribution of malignancy to sex

SEX	Benign		Maignant		Total	
	No.	Percent	No.	Percent	No.	Percent
Male	6	24%	6*	24%	12	48%
Female	8	32%	5	20%	13	52%
Total	14	56%	11	44%	25	100%

* 6 out of 11 malignant tumor in this series encountered in men (54/5 %)

of this tumor vary greatly and for this variability in epithelial component and their structure, names such as benign adenoma, pseudoadamantinomatous tumor.... etc., have been classified as a sub group for this tumor (3,5). Of other benign tumor of MSG exiphilic adenom, mentioned by Bergman, papillary cystadenoma of Whartin's tumor of MSG was not seen by many others but it has been reported by Chaudhry et al (7) Ward et al (32) and Hendrick (20) oncocytes occurred sporadically, usually, in small aggregates, among benign mixed tumors, in our series, but we have not been able to see a pure oncocytoma as mentioned by Bergman et al, Chaudhry et al and Schwartz et al (4, 7, 27) Schwartz et al, reported a single case of multinodular oncocytoma of the parotid gland (27) and noted that malignant variant of oncocytoma have been reported (27). Adenoid cystic carcinoma (Cylindromatous adeno carcinoma or cylindroma) is one of the most common malignant tumor of minor salivary gland and comprises 15 to 48.5% of all malignant type (11, 23) it accounts 24% in our series. The tumor was originally termed cylindroma by Bilioth in 1859 and other synonyms include basaloma, adenocystic basaloid carcinoma (11) it is an uncommon tumor of the major salivary gland accounting for less than 5% for all parotid tumor (11). In a series reported by Entroth et al it was found 2% in parotid gland and 15% among submandibular gland (12, 13) Eby and his coworker stated that this tumor is relatively common in the mucous gland of upper alimentary canal and respiratory passage (11). Adenoid cystic carcinoma of the oral cavity, paranasal sinuses and upper respiratory tract has been reported by Roth. (25). It's origin appears to be intercalated duct (1,28).

The next malignant tumor is muco-epidermoid carcinoma (7, 10, 11, 14) and account for 10 per cent of the MSG in published reports (18). Although they originally considered to be of two type, benign and malignant, further observation showed that they are all to be considered malignant with low or high malignant behaviour (2, 5, 8, 18). This tumor also was most commonly seen in the palate (5, 12, 18, 28), but other location such as jaw and mandible are also affected (12, 8, 12, 18, 24). It has been reported that this type of tumor is rather common among younger persons, and the two examples of low grade mucoepidermoid carcinoma, in this study also occurred in 22 and 35 year old women. From the analysis of 1, 414 intraoral

tumors Chaudhry et al concluded that the low-grade muco-epidermoid carcinoma is more common in the oral cavity (7).

Acini cell carcinoma is uncommon, less than 0.50% with low grade of malignancy. This is supposed to be arise of enzyme secreting (Zymogen) cells of the glandular acini, they are termed clear cell carcinoma by different authors (1, 9, 26, 30)...

In this study, we found only one example of poorly differentiated adenocarcinoma. Miscellaneous forms of adenocarcinoma has been reported and these can be well differentiated, poorly differentiated and undifferentiated. However, the structure of the tumor, the presence of intercellular mucine made these classification excessive. Other type of carcinoma has been reported by some authors Koss et al, for example, reported 14 cases of anaplastic small cell cancer of minor salivary gland. They were histologically akin to oat cell carcinoma of the bronchus (22). The results of long term clinical follow up study suggests that the prognosis for a given type of malignant tumor varies according to its location. Moreover according to Enroth et al, The prognosis seems most favorable when the primary tumor is in the palate (14).

Eversole proposed a histogenic classification of salivary gland tumors, and suggested two cell types as possible progenitors. Tumor originating from the intercalated duct cells and tumor originating from the excretory duct reserve cells. The first group includes adenoid cystic carcinoma, canalicular and cellular adenoma oncocytoma, papillary adenoma acinic cell carcinoma and adenocarcinoma. The second group is the pleomorphic adenoma, intraductal papilloma, muco epidermoid carcinoma and epidermoid carcinoma of salivary gland origin (16). Cells similar to Kulchitsky's all have been observed in the duct lining of large human salivary gland and in the salivary gland of the rats and dogs (22) The origin of oat cell carcinoma mentioned by some authors might be of this cell origin.

SUMMARY:

Twenty five cases of minor salivary glands tumors which was observed

at the department of pathology of University of Tehran from 1967 to 1972 are presented and discussed. Benign mixed tumor is the most common and the only benign lesion in this series of 25 patient with intraoral salivary gland tumor. There were eleven malignant type and hence about 44 % of all the tumor are malignant and it corresponded to other published reports. The most common of the malignant tumor is adenoid cystic carcinoma which comprises 24 % of all MSG tumor. Two patient suffered of mucoepidermoid tumor with low grade malignancy and there were three single case of malignant mixed tumor, acinic cell carcinoma and poorly differentiated adeno carcinoma. The literature on minor salivary gland tumor is reviewed particularly with regard the most common location and histologically frequency.

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