XII.

ADENOCARCINOMA OF THE NOSE; CHRONOLOGIC REVIEW AND CASE REPORT.

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Primary carcinoma of the internal nose, of whatever variety, is of much interest, not only because of its rarity, but because of the importance of early diagnosis and radical removal.

Kümmel[1] in 1896 reported that medical literature up to that time furnished but forty cases.

Hopkins[2] in 1897 found in the records to which he had access, twenty-three cases.

Newcomb[3] in 1899 mentions Hopkins' statistics, abstracts four other cases, adds one of his own, a total of twenty-eight cases.

Carter[4] in 1907 had found ninety-eight cases. Since 1907 to date, reports of ninety-two other cases are to be found, showing that the influence of the appeals of the earlier authors as to the reporting of cases has not been in vain.

These two hundred cases of primary intranasal carcinoma, therefore, represent the total upon which conclusions can be based.

Carcinoma of the internal nose exists in many forms. In the order of their frequency[5] they are as follows:

1. Squamous celled.
2. Cylindrical celled.
3. Medullary form.
4. Adenocarcinoma.

Adenocarcinoma may be briefly defined as an adenoma which has undergone carcinomatous development, sections of which show a pernicious proliferation of the glandular cells, showing areas of confusion in their arrangement and resulting in penetration of the basement membrane.

The extreme rarity of this form is evident, for out of two hundred cases of intranasal carcinoma reported, only twenty-one are undoubted cases of this variety.

Because of its close relationship to the benign adenomata and myxomata, adenocarcinoma is of peculiar interest.

There prevails a divergence of opinion among the authorities as to the influence of operative procedure as a causative factor in the transformation of benign growths into malignant.

Thus, Wright[6] states: "Fully aware of the opposing views of many others in this matter, I am compelled to speak from my own experience alone. I have never seen in the nose and throat, where ablations of various growths are often made at repeated and long extended intervals, any evidence of a histologic change in type from the benign to the malignant, in either papillomatous or adenomatous growths."

Finder[7] comes to the conclusion that carcinomata and polypi frequently arise simultaneously, and that pedicled tumors of primitive form (carcinomatous) are clinically undistinguishable.

Citelli and Calamida,[8] on the other hand, believe that adenoma and papilloma frequently become carcinomatous, and quote their own cases in proof. They point also to the well-known fact of such transformation occurring in other parts of the body. They account for the rarity of adenocarcinoma as due to the rarity of adenoma in the nose, and believe that transition can occur and does so rapidly.

In the analysis of the appended cases one is struck with the number of cases in which "polypi" were diagnosed primarily. If the transmutation of benign neoplasms of the adenomatous and papillomatous forms is possible elsewhere in the body, then it is reasonable to suppose that such transformation can and does take place in the nose. Such is the author's belief. Aside from this transformation in nature, the usual causative factors of carcinoma as found elsewhere prevail here.

AUTHOR'S CASE.

M. A. S., aged fifty-five years, born in Ireland; single. March, 1912. Father, alive and well. Mother died, aged fifty years, of obesity. One sister, died of breast cancer at twenty-six years. Three brothers alive and well.

Past History.—Always healthy since childhood, except for occasional attacks of grippe. About a year ago began to have profuse discharge from right nostril, frequently using as many as twenty handkerchiefs daily; discharge gluey and at times blood streaked. Consulted physicians at dispensary, and had polypi removed at many sittings. In intervals of operations, patient would blow out fleshy masses. Always bled profusely during operations. Obtained much relief in breathing and diminution of discharge until nostril refilled. At no time has she had headache or pain of any kind.

Status Praesens.—Now three months since last operation. Seeks relief for stoppage of right nostril and discharge. Has lost forty pounds in twelve months and feels weak.

Objective Symptoms.—Poorly nourished, flabby, looks older than age given. No glandular enlargement. Right nostril completely occluded. A profuse mucopurulent discharge fills the nostril. On wiping this away, a pale growth, completely filling the naris, is noted. It is lobulated, streaked with blood, boggy, and bleeds readily when probed.

Cocainization and adrenalinization had little effect in reducing the size of the growth. Postnasally a sausage-shaped tumor, pink, pale and shiny, protrudes out of the right nostril, completely filling the chona of that side. It bends across behind the vomer and touches the left eustachian eminence. It partially occludes the left nostril, but interferes but little with respiration on that side.

Transillumination reveals a dark area below right eye and over three-fourths of the internal aspect of the antrum. Right frontal and ethmoid areas dark; left, normal. Exploratory puncture of antrum negative.

Growth probably arises from middle turbinate and adjacent regions. A section was obtained by snaring a portion of the growth through the left nostril.

Examination by Dr. E. E. Smith, who reported section to be adenocarcinoma.

Blood Examination (Dr. Smith).—Hemoglobin, 78 per cent; red corpuscles, 5,190,000; fibrin form, increased. White corpuscles. 12,420. Polymorph. neutrophiles, 71.2 per cent. Large mononuclear, 6.8 per cent. Lymphocytes, 20 per cent. Mast cells, 1 per cent. Eosinophiles, 1 per cent.

Hematologic Diagnoses.—Secondary anemia, slight hyperinosis and high physiologic leucocyte count.

Urine Examination.—Specific gravity, 1.020, strongly acid. Indican, trace. Acetone, trace. Urea, 11.62 grains per fluid ounce. Sugar, small amount. Microscopically urine showed mucus, calcium oxalate, small bladder cells, no casts.

DESCRIPTION OF OPERATION.

Operation, May 14, 1912. With the view of diminishing hemorrhage during operation and of reducing the blood supply to the region of the growth, the right external carotid was ligated just above the facial. An incision was then made, beginning just underneath the inner extremity of the supra-orbital ridge and extending downwards midway between the inner canthus of the eye and median line of the face, for about two and one-half inches, the incision being curved in its lower portion outwards beneath the orbit. The periosteum was incised and elevated, separation being completed well back into the orbit. Entrance was gained into the ethmoid region by breaking through the orbital plate of the ethmoid. The orbital plates of the ethmoid and frontal and nasal process of the superior maxilla were removed sufficiently to give an excellent view of the ethmoidal and frontal regions. The frontal was found to be filled with a thick mucoid substance, and its membrane was markedly thickened, but no evidence of extension of the tumor to this region was found.

Both the anterior and posterior ethmoidal regions had been invaded by the growth, and the bone constituting the orbital plate of the ethmoid in its posterior portion was very thin, showing evidence of at least pressure from the growth. The growth filled the entire inferior, middle and superior meati. This growth was removed as far as possible, and the ethmoidal cells thoroughly eradicated, the entire ethmoidal labyrinth being removed. The sphenoid, except for the fact that its membrane was somewhat thickened, presented no evidence of the disease. This wound was packed tightly with iodoform gauze, and an incision was then made over the malar fossa of the superior maxilla, as for a radical antrum. The wall was very thin, and the antral cavity was filled with the growth. The growth presented a soft mass, lobulated, bleeding freely wherever lacerated. It could not be removed en masse, hence was removed in sections. The orbital floor about half way back presented an opening which was judged to be either a

dehiscence or the result either of pressure from the growth or of involvement of the bone. This opening was enlarged and all bone which presented evidence of disease was removed. The inner walls and mucous membrane of the entire antrum were involved, but the bone of the floor and posterior walls, as far as could be judged, were not extensively involved, though even after thorough curetting, the floor still had a velvety feel. The entire inner wall of the antrum was removed, including all of the turbinal tissues, the cavity of the antrum thoroughly curetted throughout its entire extent. The cavity was then tightly packed with iodoform gauze. The incision on the face was sutured with silk, no drainage being left in this region. There was markedly little hemorrhage throughout the operation.

Patient made an uneventful recovery and was discharged on the eighth day.

CHRONOLOGIC TABLE.

Year	Reporter.	History	Symptoms			Origin	Extension	Diagnosis	Operation		Termination	Autopsy	Remarks
			Obstruction	Discharge	Pain				Primary	Secondary			
1890 (9)	Newman, D.	Male, 47. Chrome worker	Left nostril	Profuse serous; at times bloody	No	Inferior turbinate	Antrum	Adeno-carcinoma	Piece for examination	None	Death	No	
1897 (10)	Hopkins, F. E.	Male, 83. Tubercular family. Nativity not given	Left nostril	Copious mucous	No mention	Not stated	Entire naris	Polypi and myxoma	Rough removal at intervals by general practitioner	No operation because of age	Not stated	No mention	Author believes malignancy due to trauna of incomplete operation
1897 (11)	Saetta.	Female, 60.	Left nostril	No mention	No mention	Uncertain	No mention	Adenoma with carcinomatous degeneration	No details	No details	No details		

1897 (12)	Leland, G. A.	Female, 50. No family history	Right nostril (at night)	Profuse purulent	Right frontal pain	Ethmoid	Orbit septum antrum	Adeno-carcinoma	Piece for diagnosis	None	Death two months	Death from cachexia	
1898 (13)	Thorner, Max.	Male, 47. Farmer, U. S.	Left nostril 1 year	No mention	Moderate	Middle (meatus) turbinate	Left orbit, destruction of eye	Adeno-carcinoma	Removal many times, snare and curette		Death	Cachexia and meningitis	
1899 (14)	Newcomb, J. E.	Female, 61. U. S.. Negative family	Frequent head colds for many years, both	Copious, watery, hemorrhagic and offensive	No	Middle turbinate	Superior maxilla and hard palate	Adeno-carcinoma	Piece for diagnosis	Excision of upper jaw	Death one week after operation	Thrombi of coronary arteries	Author does not believe polypi became malignant
1902 (15)	Polyak.	Female, 66. No history	No details	No details	No details	Ethmoid region	Antrum and behind orbit	Adeno-carcinoma	Local curettage	Removed under ether	Alive when last seen		
1902 (16)	Citelli and Calamida.	Male, 52. Farmer	Right nostril 3 years	Purulent	No	Not stated	Orbit	Adeno-carcinoma	Piece for diagnosis	Refused	?	?	

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Year	Reporter	History	Symptoms			Origin	Extension	Diagnosis	Operation		Termination	Autopsy	Remarks
			Obstruction	Discharge	Pain				Primary	Secondary			
1903 (17)	Page, L. F.	Male, 40. Negative family	Right nostril 3 years	No mention	Frontal headache	Middle turbinate	?	Adeno-carcinoma	Piece for diagnosis	Exenteration middle turbinate and ethmoids	No return		
1903 (18)	Cordes, H.	Female, 75. No history	Right nostril	Copious, bloody	Severe frontal	Not definite	Outer wall	Adeno-carcinoma	Piece for diagnosis	28 applications of cautery	No return after 9 months		Patient had erysipelas; radical operation refused.
1904 (19)	Dudley, Wm. H.	Male, 61. Negative family	Five years left	Purulent from antrum	Moderate	Left ethmoid and sphenoid	Orbit and all sinuses	Polypi adenoma adeno-carcinoma	Removal of polypi	Partial removal through orbital incision	Death after 2 years	All sinuses involved; cranial cavity eroded; no meningitis	Author believes that degeneration of polypi occurred

1905 (20)	McCoy, John.	Male, 47. Family negative	Right nostril	No mention	Frontal	Ethmoid	Frontal sinus, sphenoid and septum	Adeno-carcinoma	Removal and curettage	Modified Killian	No recurrence 1½ years		Author commends mode of operation
1905 (21)	Minor, C. L.	Female, 28. Cancerous family	Left nostril and later right	Profuse	No mention	Middle turbinate	Septum and superior meatus	Polypi and later adeno-carcinoma	Repeated removals	Radical curettage	No recurrence 1 year		
1905 (22)	Minor, C. L.	Female, 22. Moderate cancerous history	Both nostrils	Profuse purulent	No mention	Middle turbinate, both	Ethmoid	Polypi and later adeno-carcinoma	Removal, two operations	Exenteration middle turbinate and ethmoid	No recurrence 6 months		
1905 (23)	Fiocre.	Female, 63.	No details	No mention	No mention	Middle and inferior turbinate	No mention	Probable sarcoma	Removal, snare and forceps		No return 2 months		

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Year	Reporter	History	Symptoms			Origin	Extension	Diagnosis	Operation		Termination	Autopsy	Remarks
			Obstruction	Discharge	Pain				Primary	Secondary			
1907 (24)	Hurd, Lee M.	Male, 59.	Left nostril	No mention	No mention	Antrum	Entire antrum	Adenoma, later adenocarcinoma	Ligation carotid, removal upper maxilla		No recurrence 1½ years		Author commends ligation of external carotid
1907 (25)	Pusateri.	Male, 60.				Right ethmoid	Antrum						Anatomic specimen
1907 (26)	Harmer and Glass.	1 case.											No history or details

1908 (27)	Klemptner, Louis	Female, 33.	Both nostrils 3 years	No mention	No mention	Right antrum	Ethmoid and middle turbinate	Adeno-carcinoma (glandular)	Denker antrum and ethmoid removal		No recurrence 6 months		No details; simply mention
1910 (28)	Gault.	No details.	Right nostril	No mention	No	Middle turbinate	Ethmoid and whole nose	Adenoma (epithelium) adeno-carcinoma		Ethmoid and middle turbinate removed	No recurrence 5 months		Details meager
1912 (29)	Alexander, L. D., Jr.	Female, 55. Sister died of cancer. Lost 40 pounds	Right nostril	Copious, gluey and bloody	No	Middle turbinate	Antrum and ethmoid	polypi and adeno-carcinoma	Many removals of polypi	Radical removal and carotid ligation	No return 6 months		Case shown at Academy of Medicine

SUMMARY.

Average age	53
Extremes	22-83

SEX.

Male	9
Female	10
Not given	2

SIDE INVOLVED.

Right	7
Left	7
Both	3
Indefinite	4

ORIGIN.

Middle turbinate	13
Antrum	2
Inferior turbinate	1
Uncertain	5

OPERATIONS.

Radical removal	5
Exenteration and curettage	9

TERMINATION.

Death	5
No recurrence	9
Lost sight of	7

Consideration of this summary shows that adenocarcinoma is essentially a disease of the cancerous age; and yet the two cases reported, one of twenty-two and one of thirty-three years, show that an early onset is possible. The influence of sex is negative, as is the side involved.

The predilection for the middle turbinal and ethmoid region, as evidenced in thirteen cases, is significant, in view of the imperfect surgery performed in that region.

Absence of pain, even when extensive involvement of adjoining structures has occurred, is a noticeable fact. The absence of lymphatic involvement is, I believe, more apparent than real. It will be remembered that the nasal lymphatics empty chiefly into a few glands situated around the eustachian tubes, another set placed in front of the cervical vertebra, still another near the cornu of the hyoid bone, while some again empty into the deep cervical lymphatics. The difficulty of palpation of glands situated as above is manifest.

PROGNOSIS.

In estimating the prognosis of adenocarcinoma and the success of the removal by operative procedure, there are several considerations necessary. In the opinions of the authorities, the outlook is most hopeless. Thus Carter states, "that there is no authoritative case on record where recurrence has not taken place after the operation, and often this recurrence has taken place before the patient has left the hospital."

I am unable to refute this statement by the recorded cases above, even though adenocarcinoma is the least malignant variety of all.

Of the nine cases radically operated upon, as given above, one, that of Hurd, had no recurrence in two years, and one, that of McCoy, none in three years. Of the other seven, I am unable to obtain information except as reported.

It is most probable that a future review of this subject will provide better statistics and better results. This will be accomplished by the routine examination of polypoid growths, leading to the early recognition of those showing beginning malignant changes, and the discovering of coexisting pedicled malignant growths. In spite of the meager results as evidenced above, I believe the early diagnosis and extensive and radical operative procedure now practiced will lead to a better prognosis in future cases of this form of growth.

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