inflammation of mucous membrane, the products of which were not escaping properly.

In his " unregenerate days " fifteen years ago, he showed a case after an heroic operation had been done, under the influence of Mr. Herbert Tilley, and he subsequently showed the patient as a warning against that procedure. In those days he had two or three cases in which there had been a sequestrum of the os planum of the ethmoid. Since he had followed the policy of " hanging on " this had not occurred.

He was not claiming that by doing this every case would be saved. Years ago he had the case of a boy who had these symptoms, and there was intense injection of the mucous membrane and nothing else. He died of cavernous sinus thrombosis. The inflammation had spread from the ethmoidal mucous membrane to the superior ophthalmic vein, which had become thrombosed. Within the thrombus pus had formed, and this had burst into the orbital fat. The only operation that could have helped in such a case would have been a ligature of the superior ophthalmic vein prior to any symptoms having arisen.

ROYAL SOCIETY OF MEDICINE—SECTION OF LARYNGOLOGY AND SECTION OF OTOLOGY

(COMBINED MEETING, HELD AT BRISTOL, ON JUNE 14TH AND 15TH, 1935)

June 14th, 1935

LARYNGOLOGICAL SECTION

Chairman—PATRICK WATSON-WILLIAMS, M.D.

CASES

Congenital Shortness of the Œsophagus.—A. J. WRIGHT. K. S., male, aged 6 years.

First seen *May 14th*, 1935, complaining of cough followed by vomiting ; worse at night. The child is undernourished.

Skiagrams show the existence of a portion of the stomach in the thorax.

Suggestions as to future treatment would be welcomed.

DISCUSSION.

W. STIRK ADAMS said that the boy was making good progress, in spite of his difficulty in swallowing, and it would be wise to leave him alone for the present, and to pass an œsophageal bougie later if he lost ground. At the Birmingham Meeting last year a much younger child, who had a similar condition had been shown ; gastrostomy was done, and after this he was able to swallow much better than before. It was hoped he would continue to improve, but in the winter he developed

https://doi.org/10.1017/S0022215100041992 Published online by Cambridge University Press

broncho-pneumonia, of which he died. Until his death he was swallowing normally by mouth.

H. BELL TAWSE said that no radical operative treatment had yet been devised to deal successfully with congenital shortening of the œsophagus, hence all that could be done was towards amelioration. The diaphragmatic hernia was directly due to the failure of the œsophagus to elongate sufficiently. It was most important to avoid distension of the stomach. A careful diet and restricted meals would help. Frequent over-distension might lead to adhesions, and twisting of the stomach on its long axis might follow with increased obstruction to the passage of food. Even ulceration might occur. A few months ago, at a meeting of the Section of Laryngology,* he had shown skiagrams of a girl of 18, who had begun to vomit at the age of 6. Every year, or year and a half, she required dilatation of the stricture. The intervals were inconstant and the cause not apparent. The narrowing was not due to spasm alone; there was a definite stricture of limited dilatability. The dilatation in these cases should be carried out with the utmost gentleness, under direct vision.

A. J. WRIGHT (in reply) said that another little boy had been brought to him suffering from a similar condition, which was ultimately fatal. Another patient, aged 65, seemed to enjoy having her stomach in her thorax, and he had wondered whether one should send such patients, when children, to some place where doctors did not exist, so that they could take their chance of growing up.

Specimen and Skiagrams of a Case of Congenital Shortness of the Œsophagus, with Stricture.—A. J. WRIGHT.

The stricture was treated by intermittent and continuous dilatation and gastrostomy with, eventually, a fatal termination as a result of instrumental perforation of the œsophageal wall.

Thyroglossal Cyst of the Tongue.—A. J. WRIGHT.

A. W., female, aged 58.

First seen five years ago, with a feeling of fullness at the back of the tongue and swelling in the right side of the neck. The neck showed an abscess, from suppurating glands, which was drained and has given no further trouble. At the base of the tongue there was a smooth rounded elastic swelling.

A considerable portion of the cyst-wall has been removed on two occasions, once with scissors, and again, four years ago, by diathermy. The cyst has slowly filled again but does not produce any symptoms beyond discomfort.

DISCUSSION.

F. C. ORMEROD said that these thyroglossal tumours on the back of the tongue were not very uncommon. Sometimes they were mistaken for lingual thyroids, and in some patients the tumour was the only thyroid tissue in the body. It had been removed in cases in which

* For notes of case see *Proceedings*, 1935, xxviii., 443 (Sect. Laryng., 15).

https://doi.org/10.1017/S0022215100041992 Published online by Cambridge University Press

there was no thyroid, and in some of those cases myxœdema had resulted. Recently, in the Westminster Hospital, there had been a boy, aged 16, with a tumour similar to the one shown. It had undergone sarcomatous degeneration, and had been treated by a radium bomb, which had arrested the sarcomatous change. In the present case, as the patient was aged 58, it was unlikely that a malignant change would take place, and it was scarcely worth while to operate. If symptoms persisted the tumour could be marsupialized by punching out portions of the wall to give drainage, and this might result in its disappearance.

E. COWPER TAMPLIN said that the swelling in the neck had nothing to do with the thyroglossal cyst, and he would advise operation. If the tumour were removed there would be no fear of sarcomatous degeneration. A midline incision, going through the hyoid bone and excising the central portion would probably show a thread-like duct, and that would give a line up to the cyst, and render dissection comparatively easy. That was probably the best course, as the woman had some difficulty in breathing at night. If that course was not followed he suggested puncture and aspiration of the fluid.

C. A. SCOTT RIDOUT said he did not agree with Mr. Ormerod that the age of this patient was against the possibility of the growth becoming malignant. The operation required was a comparatively easy one, and the cord-like remains of a duct leading up to it would probably be found.

MUSGRAVE WOODMAN said that the operation of access at the base of the tongue was easier than would generally be supposed. He had performed it recently in three cases of malignant disease of the tongue. He kept to the middle line, split the muscles on either side, and took out ¼ in. to ½ in. of the hyoid bone in the middle line. Holding the edges aside, the capsule is reached, and the tumour palpated. He agreed that if this were done there would be no difficulty in removing the cyst.

Recurrent Granuloma of Larynx following Mustard-gas Poisoning.—E. WATSON-WILLIAMS.

Mr. A. W. B. was under my care in *January*, 1923 (then aged 29), suffering from hoarseness, due to a granuloma of the larynx: slight hoarseness had persisted since he was gassed with mustard-gas in *August*, 1917. The granuloma was found to be attached to the larynx in the region of the anterior commissure, mainly subglottic, but to a small extent on the margin of the left cord near the commissure, and was removed by direct laryngoscopy, with complete relief.* On *May 20th*, 1935, he returned complaining of slight hoarseness for four months, worse during the last three weeks, ascribed to a cold: no symptoms in interval. The anterior three-fourths of the left cord is hidden by a greyish, smooth ovoid mass, apparently sessile, and resembling in appearance a nasal polypus: movements of cord appear good: it is proposed to remove this mass as soon as he can make necessary arrangements.

* For full report see *Proceedings*, 1930, xxiii., 1533 (Sect. Laryng., 83); *Bristol Med. Chir. Journ.*, 1923, 154.

https://doi.org/10.1017/S0022215100041992 Published online by Cambridge University Press

H. BELL TAWSE said that he would suggest removal of the mass by the same method as that of the operation in 1923. The growth might become malignant, and doubtless the specimen would be examined microscopically. If the growth recurred he would advise laryngofissure with removal of the vocal cord, ventricular band, and the anterior commissure. In a case of his own, shown at a meeting of the Section in 1929,* due to chlorine-gas poisoning, this procedure was carried out. He was glad he did not attempt removal by the direct method. The man returned to work soon afterwards without requiring to wear a tracheotomy tube, and had remained well ever since.

Specimen : Polypus of Œsophagus which caused fatal Tracheal Obstruction.—E. WATSON-WILLIAMS.

Mrs. G. J., aged 58, was referred to me on *April 17th*, 1935.

History.—One month previously she had had a slight cough and was wheezy, and the next day experienced some difficulty in swallowing meat—both quite novel symptoms. On the fourth day " an abscess broke in the throat and I coughed up a lot of blood and nasty matter ". Since then she can only take fluids, often with great difficulty ; slight wasting, voice unaltered.

On *April 17th* she coughed up yellow pus, and also brought up brown phlegm : a loud wheezing sound was noticeable, with bubbling, mainly expiratory, best heard in mid-line immediately above manubrium sterni, also in front of first right interspace. Respiratory distress was obvious and increasing, sucking in of root of neck on inspiration, worse on extending head ; lungs : bronchitis, no consolidation. Larynx : abductor paralysis of left vocal cord. P. 110 ; R. 28 (to 44) ; T. normal. No pain.

Skiagram.—A fusiform shadow 4″ high, 2″ broad, 1½″ front to back, centre behind top of sternum : aorta looks as if pushed over to left by it, and trachea to right, œsophagus behind.

Diagnosis.—Peri-œsophageal abscess, bursting into œsophagus. Patient's condition did not allow further investigation.

Direct bronchoscopy (same day).—Larynx as stated : at 20 cm. from teeth the lumen of trachea is reduced to demilune slit by mass bulging in posteriorly and from left, much muco-pus aspirated from below this, mucosa reddened, otherwise normal. Œsophagus, entrance normal ; at 20 cm. from teeth left anterior wall bulges back, mucosa normal ; lumen full of brown felt-like material. At 22 cm. soft irregular ulceration of anterior half of wall : tube passed gently on, end of mass at 28 cm. but bleeding so free that view impossible. Report : " Looks like invasion of œsophagus from mediastinum ; if a growth, it is very soft and friable." One hour later S.O.S. from ward—urgent tracheotomy, and insertion of long rubber tube ; relief.

* *Proceedings*, 1930, xxiii., 784 (Sect. Laryng., 26), 1417 (Sect. Laryng., 59)

https://doi.org/10.1017/S0022215100041992 Published online by Cambridge University Press

On *April 21st* respiratory distress increased, temperature normal; the patient collapsed and died.

Autopsy.—Myocardial degeneration secondary to broncho-pneumonia. Œsophagus much dilated in upper 6 in., and mucosa ulcerated. Attached to the cricoid region and hanging down the œsophagus was a large tumour, 5 in. by 2 in., on a flat ribbon-like stalk of normal mucosa, the lower part of mass was necrotic. Report: simple fibromatous polypus.

Eight cases shown by Miss Sylvia B. Wigoder (introduced by Mr. E. Watson-Williams) to illustrate Radium Treatment of Malignant Disease of Antrum and Ethmoid.*

I.—**Mixed-cell Sarcoma of Ethmoid.**

Mrs. A. F., aged 71. On *June 1st*, 1931, complained of a polypus in the nose of four months' duration, with "catarrh" (i.e. obstruction) and muco-purulent discharge—bloodstained on one occasion. There had been an injury to the nose in *September*, 1930. Slight left proptosis; pain and tenderness round inner half of left orbital margin. The inferior turbinate was replaced (or hidden) by a red, fleshy mass, bathed in sero-purulent discharge. Biopsy report: "Mixed-cell sarcoma." Skiagram: Left ethmoid opaque, antrum and frontal sinus probably full of mucus.

Operation (E. Watson-Williams).—*June 12th*, 1931: Ten needles, each containing 2 mg. of radium, 3 cm. long, 0·5 mm. pt. screen inserted: (*a*) three into ethmoid by orbital route, one above the other; (*b*) three into middle and inferior turbinates; (*c*) four across septum of nose on wire frame support; total dose, 3·3 gramme-hours. *March*, 1932: Upper part of nose showed extensive atrophy of mucosa; middle turbinate a mere plate, lower part filled by firm grey mass; altered inferior turbinate; no glands. *October*, 1934: Apparently typical atrophic rhinitis, with only indications of turbinates; hard green crusts, and fœtor. (Right side, milder atrophy, no crusting.) Left eye had been growing dim during past six months; right purblind for six years; progressive corneal opacities right and left. General health very good.

II.—**Transitional-celled Carcinoma of Ethmoid.**

H. P., aged 57, seen on *February 5th*, 1934, complained of nasal obstruction for four months; no other symptoms. Nasal polypus had been removed in *November*, 1933. *On examination:* Right middle meatus blocked by a polypus: on removal this proved to be very soft and friable ("?neoplasm"), had eroded the inferior turbinate and replaced the middle. The ethmoid was cleared out; very little bone remained, only a mush of soft pulpy tissue. Both antra contained pus, and the mucosa was thickened and polypoid.

* Cases I to VII are tabulated in the *Practitioner*, 1934, cxxxiii., 719.

https://doi.org/10.1017/S0022215100041992 Published online by Cambridge University Press

Biopsy report: "Polypoidal growth lined with transitional-celled epithelium which dips down and forms masses which extend into centre, basement membrane broken through. Simple polypus with precancerous changes."

Operation, 16.2.34 (E. Watson-Williams).—6 by 6·25 milligrams of radium in 0·6 platinum screen packed into ethmoid and kept in position with gauze; total dose 2·7 gramme-hours.

February, 1935. General condition very good; nose shows extensive atrophy, with crusting; patient uses douche.

III.—**Squamous-celled Carcinoma of Ethmoid and Antrum.**

Mrs. M. A., aged 57. On *September 15th*, 1932, complained of painless left nasal obstruction during four months with watery (never bloody) discharge. No external swelling, no glands; edentulous: left epiphora. Olfaction normal; no offensive smell. On examination a mass of soft, pink granulations (bleeding readily on touching) is seen protruding between left middle and inferior turbinates; and by posterior rhinoscopy, filling the choana. X-ray: left side of nose, left antrum and ethmoid quite opaque: expansion of antrum inwards and also down into palatal region: frontal sinus full of mucus.

Operation (E. W.-W.).—*September 23rd*, 1932: Peroral antrostomy. Antrum full of thick, glairy muco-pus: lining membrane slightly thickened. Three needles of 2 mg. radium, 3·2 cm. long, 0·5 mm. pt. screen, inserted into mucosa of nose along inner wall of antrum: two needles of 1·33 mg. radium, 2 cm. long, 0·6 mm. platinum screen, into ethmoid by orbital approach, total dose 2·1 gramme-hours. Biopsy report: Antral mucosa=carcinoma arising out of antral mucosa of modified squamous type, slow growth and moderate malignancy: tissue from nose, frankly carcinomatous, considerable malignancy.

October 19th, 1932. Oral opening into antrum; 10 seeds containing 2 millicuries radon each, 0·5 mm. platinum screen, packed into antrum all round walls, using cyanide gauze: gauze end brought into nose, and mouth incision closed.

March, 1935. There is a wide oro-antral opening, closed by a dental obturator. Antral and nasal mucosa dry, with small scabs; antro-nasal wall has disappeared. No sign of any recurrence of growth, general condition very good.

IV.—**Lymphosarcoma of Ethmoid and Antrum.**

Mrs. S. W., aged 74. On *May 25th*, 1933, complained of tightness in right nostril for eight months, with purulent (occasionally blood-stained) discharge. No previous nasal disease. Right temporo-malar headache of three days' duration. Olfaction good, marked

https://doi.org/10.1017/S0022215100041992 Published online by Cambridge University Press

fœtor. Right cheek swollen, and slightly tender: palate normal, edentulous. Two irregular hard fixed glands beneath sternomastoid muscle at level of angle of jaw. The nose shows a sloughy polypus appearing between the middle and inferior turbinates.

Skiagram.—Opacity of right antrum and ethmoid, with destruction of bony walls of antrum.

Operation, June 14th (E. W.-W.).—Block-dissection of glands of neck, with insertion of four needles of 2 mg. radium, 0·5 mm. platinum screen. Peroral antrostomy: antrum full of muco-pus, and lined with thick velvety malignant tissue; four needles of 1·33 mg. radium inserted, and packed in with gauze, threads brought out through nose.

Three needles of 1 mg. radium inserted along septum, two into right ethmoid (orbital approach), two into middle meatus of nose, one in inferior meatus; total dose 8 mg. 0·5 mm. platinum screen. Total dosage of radium, antrum 1·06 gramme-hours, nose 0·62 gramme-hours, neck 2·3 gramme-hours= 4 gramme-hours. Biopsy report: (glands and mucosa) " lymphosarcoma ".

Two subsequent courses of deep X-ray therapy to neck.

March 26th, 1935. Extensive atrophy of right side of nose; no sign of any recurrence: general condition very good.

V.—**Schneiderian Carcinoma of Ethmoid and Antrum.**

Mr. J. W., aged 44, complained of blocking-up of left side of nose after " flu " one year ago, and of an " uncontrollable greenish-yellow discharge ".

Condition on examination.—Left side of nose: pink, irregular mass, not tender and not bleeding on being touched.

X-ray report.—Whole of left ethmoid and inner half of left antrum are opaque. Wassermann reaction negative.

Pathological report.—13.6.34: " Growth composed of loose connective tissue showing much round-cell infiltration in places. Blood-vessels fairly numerous. Covered by transition epithelium which in places is growing downwards, and is showing infiltrating growing edge—cells mostly of embryonic type showing some inequality of shape and size and evidence of rapid growth—Schneiderian carcinoma."

15.6.34. *Operation* (Scanes-Spicer. E. W.-W.).—Whole ethmoid appeared to be pulp; no bone left; antral walls unaltered, but thick soft growth all over. Radium inserted: Antrum, 4 by 1 mg.; nose, 4 by 1·33 mg.; septum, 1 by 1·33 mg.; through margin of orbit, 1 by 2 mg.; 2 by 1·33 mg.

25.6.34. Radium removed after ten days as eye became inflamed.

13.7.34. General anæsthetic. Radium inserted: olfactory cleft, 2 by 5 mg.; floor of nose, 2 by 5 mg.; total dosage, 4·7 gramme-hours.

https://doi.org/10.1017/S0022215100041992 Published online by Cambridge University Press

15.7.34. Radium removed after thirty-six hours.

22.11.34. Some pain in left temple. " Pins and needles " in left cheek, which is a little puffy. Some crusting in nose ; never bleeds. Turbinal atrophy beginning, but no sign of recurrence.

11.4.35. Satisfactory. Atrophy well marked. Patient has been at work since *August*, 1934 (not lost a day). Has gained 7 lb. Condition good. No recurrence ; epiphora.

VI.—**Schneiderian Carcinoma of Antrum.**

Mrs. H. L., aged 66. On *April 18th*, 1932, complained of feeling of numbness in right cheek for six weeks, following influenza, with pain in right eye. Right cheek slightly swollen and very tender, but not red ; slight ptosis and proptosis, vision unimpaired. Palate normal ; edentulous. No nasal symptoms, no discharge, nothing abnormal seen ; no glands. Right temporal headache. Wassermann reaction negative. Skiagram : left antrum opaque, apparent bone destruction in right malar region.

Operation, May 5th (E. W.-W.).—General anæsthesia. Peroral antrostomy ; anterior bony wall of antrum eroded near centre, just above gingival portion ; lining membrane rather irregular and papilliform, some muco-pus in antrum, bleeding slight ; appearance rather suggestive of malignancy, but tissue firm. Biopsy : " Much of this growth is composed of fibrous tissue densely infiltrated with small round cells. The transitional epithelium has grown inward forming masses and cords throughout the fibrous tissue These epithelial cells are definitely carcinomatous and growing rapidly—carcinoma of Schneiderian type."

May 13th (E. W.-W.). 10 needles of 1 mg. radium, 2·7 cm. long, 0·5 mm. platinum screen packed into antrum in a fan-shaped manner. Three needles of 2 mg. radium, 4·5 cm. long, 0·5 mm., platinum screen, placed (1) in ethmoid, by orbital approach, (2) through middle turbinate, (3) through mucosa of inferior turbinate. Total dose : 4 gramme-hours.

February, 1934. Perfectly well, no sign of recurrence ; mouth normal ; moderate nasal atrophy.

May, 1935. Perfectly well.

VII.—**Small Round-celled Sarcoma of Antrum.**

Mrs. E. H., aged 61. On *October 24th*, 1932, complained of stiffness and swelling in left cheek of two months' duration ; not increasing. A tooth had been extracted a month after the onset, and a skiagram taken then was reported " negative "; the few remaining teeth were normal. No nasal discharge ; left nasal passage wide, rather dry. Cheek definitely swollen but not tender ; palate normal. Small firm gland felt beneath anterior margin of sternomastoid at level of angle of jaw. Skiagram : œdema of cheek and *probably* neoplasm of antrum.

https://doi.org/10.1017/S0022215100041992 Published online by Cambridge University Press

November 2nd (E. W.-W.). General anæsthesia. Nose absolutely normal. Peroral antrostomy. In two places, anterior bony wall of the antrum destroyed, appearances suggesting that destruction was due simply to a dental granuloma : cavity of antrum half-filled by greyish, soft malignant growth. Three needles of 1·33 mg. radium inserted across roof ; four of 1·0 mg. two along outer and two along inner walls ; 2 mg. also in adjacent part of nose under inferior turbinate. All screened, 0·5 mm. platinum screen ; total dosage 2·9 gramme-hours.

Pathological Report.—" This is polypoidal mucosal hypertrophy. The surface is covered by normal columnar ciliated epithelium and the tissue beneath is œdematous and rather cellular while, deeper down, the condition is sarcomatous and there is some erosion of bone. The sarcoma cells are chiefly of small rounded type. Vessels are not numerous and have fairly thick walls. Polyp become sarcomatous."

Subsequent pack to side of neck, 10 mg. radium in six needles, 0·5 mm. platinum screen, 1·0 cm. from skin : total dosage 4·0 gramme-hours. Mouth wound broke down, leaving a wide oro-antral opening.

February, 1934. Condition very good ; no sign of growth or glands ; mucosa very atrophic both in antrum and nose ; patient has to use a douche to get rid of crusts. Dental obturator worn.

May, 1935. Very well.

VIII.—**Transitional-celled Carcinoma of Antrum.**

Miss B. G., aged 70. Complained of swelling of gland in right side of neck for three months ; firm, painless, mobile : feels like lymphosarcoma, no recent nasal symptoms : anosmia all her life, following measles. Nose—atrophic rhinitis, no crusts, no fœtor.

Operation, 28.9.34 (E. W.-W.).—Nodular mass consisting of three matted glands removed. Very small hard fourth gland removed. More similar glands felt, especially posteriorly.

Pathological report on glands.—Transitional-celled carcinoma.

Skiagram. Opacity of right antrum.

Two doses of deep X-ray therapy to side of neck.

Operation, 17.10.34 (E. W.-W.).—Peroral antrostomy. Mucosa showed slight general thickening about quarter inch deep covered in muco-pus. Bleeding very free. Pernasal antrostomy. Radium inserted : Nose, 4 by 2 mg. ; antrum 6 by 1 mg. Total dose 4 gramme-hours.

29.10.34. Radium removed.

14.2.35. Nose—dry crusting. Small oro-antral fistula. Complained of aching pain at the back of the nose ; severe at times. Gland felt at lower cervical group on right side. General condition very good.

https://doi.org/10.1017/S0022215100041992 Published online by Cambridge University Press

DISCUSSION.

LIONEL COLLEDGE said this was a very satisfactory group of cases, for several reasons; the value of a series was much greater than that of a few isolated cases. It seemed that the satisfactory results represented 80 per cent. of the whole series. Another valuable point was that all the cases had been treated by the same method.

The actual results of the cases were very good; they showed nothing worse than some atrophic rhinitis. The cases also, he considered, illustrated that the advice sometimes given that the palate should be removed so as to gain access—and also to enable the area to be kept under observation—was not good advice; these cases showed that that procedure was an unnecessary mutilation.

Another lesson they gave was that the radium was better used in doses of from 15 to 20 mg. over ten or twelve days than in massive doses applied for short periods. Very few cases were now treated by simple surgical excision, though for some this was still a good method. The choice now lay between radium and electro-surgery. He did not think it was good to employ both. In Stockholm these cases were first dealt with by electro-surgery and then radium was applied. He thought that in the ethmoid, radium was the better treatment, but the treatment adopted depended on the exact situation of the tumour.

What was the significance of the term " Schneiderian " as applied to these cases?

Miss WIGODER, in reply to various questions, said she did not think that any special eye changes had supervened; one or two patients had complained that their sight was worse, but when they had been referred to the Ophthalmic Department nothing abnormal had been found. Another question concerned bone necrosis; this had not been found up to the present.

It was necessary to get close to the base of the growth so that as wide a surrounding area as possible should be irradiated, and for this reason it was found better to insert radium needles into the base of the growth rather than to use a stent mould in the cavity.

E. WATSON-WILLIAMS (in reply) said that the term " Schneiderian " carcinoma was that used by Dr. Fraser, the pathologist; he understood it to mean a growth composed of cells of the same type as those in the Schneiderian membrane.

Chronic Sinusitis with Obscure Periodontal Focal Sepsis of Many Years' Duration.

—PATRICK WATSON-WILLIAMS.

A woman, aged 50, who had been under observation and treatment over four years, was referred to me by Dr. Furness of Montreal in 1933, on account of periodic acute supra-orbital headache and nasal discharge.

In 1928 former peri-apical sepsis of the left upper incisors, with a definite radicular cyst of the central incisor had apparently cleared up after tooth extractions but, as the left antrum had become involved, Dr. Furness had performed a Caldwell-Luc operation, and,

https://doi.org/10.1017/S0022215100041992 Published online by Cambridge University Press

later, exenteration of the ethmoid cells and per-nasal drainage of the frontal sinus.

In 1933 the pain in the left orbito-nasal angle, with periodical swelling of the eyelids, induced me to make freer entry to the frontal sinus and remove remaining ethmoid cells as completely as possible. The patient went home.

In *June*, 1934, as the periodical headaches persisted, Dr. Furness again sent her to me, so again I reviewed the early history of alveolar bone sepsis, yet special skiagrams failed to reveal any abnormal condition. The bone laid bare by reflecting the muco-periosteum appeared normal, but when the underlying bone was burred by Dr. Claremont he found a softened area—the débris from which yielded a profuse growth of *Streptococcus viridans*. Suspicions aroused by her history had at length led to the discovery of this still actively virulent septic focus hidden in the bone, with no local evidence of its persistence throughout the intervening six years since the last tooth was extracted.

Believing that it was from this septic cavity that organisms originally penetrated the bone walls of the sinuses as well as the mucous membranes, I resorted to an operative method suited for such conditions, which I first used many years ago. Through an incision per-nasally, along the margin of the nasal notch, the periosteum was reflected from the anterior face of the antrum and from the inner surface of the antro-meatal wall. The bone was removed from the inner half of the anterior wall and the nasal notch, down to the floor—corresponding with an area of recurring tenderness.

The patient has improved tremendously and become much stronger, but is still not free from recurring supra-orbital headaches and swelling of the eyelids. It is suggested that these attacks are due to periodical sensitization of organisms still present in the bone and submucosa of the sinuses. Following a recent attack of influenza, the right antrum became infected. Antrostomy will shortly be performed.

Postscript.—After drainage of the right antrum, all abnormal symptoms disappeared.

Aneurysm of the Internal Carotid Artery.

—J. ANGELL JAMES.

L. R. A., a boy, aged 12 years.

History.—First seen *February 25th*, 1935, referred by Dr. H. Johnstone of Wellington, complaining of thickness in the throat, with indistinct speech, dating from a quinsy in *July*, 1934, when he had a very severe hæmorrhage from the right side of the throat. Four years ago his jaw was fractured when he was knocked down by a motor bus and his general health has not been good since.

https://doi.org/10.1017/S0022215100041992 Published online by Cambridge University Press

On examination.—Right tonsil displaced inwards by a smooth swelling the size of a plum, in the lateral pharyngeal wall, with expansile pulsation. Paralysis of the right side of the palate, with resulting rhinolalia aperta. Right pupil contracted, and right palpebral fissure narrowed. On compression of the common carotid the swelling did not collapse, but tension was diminished, and pulsation was reduced.

Operation, 26.2.35.—The common external and internal carotids were exposed on the right side. Compression of the common carotid abolished pulsation entirely. Compression of the internal carotid reduced, but did not completely abolish pulsation. Compression of the external carotid had no effect. Ligature of the common and external carotids was performed.

30.4.35. Swelling reduced to quarter its original size. Voice greatly improved, but palate and eye condition unchanged. The boy's parents state that his general health is much better than it has been since his jaw was fractured.

Post-cricoid Carcinoma treated by Interstitial Radiation.—J. ANGELL JAMES.

H. S. R., male, aged 49.

History.—First seen on *August 4th*, 1933, complaining of nasal obstruction and discharge for thirty years; difficulty in swallowing for nine months.

On examination.—Septum deflected to the left, nasal polypi present on the right side. Excess of mucus in the pyriform fossa on both sides. No enlargement of glands.

16.8.33. Œsophagoscopy. Fungating mass in post-cricoid region. Biopsy: squamous-celled carcinoma.

Operation, 23.8.33.—Incision along the anterior border of the right sternomastoid. Carotid and internal jugular displaced forwards. Ten 1 mg. needles of radium inserted between the posterior pharyngeal wall and vertebral column, immediately behind the cricoid. Wound sutured.

Nine days later wound reopened, radium removed.

23.11.33. Œsophagoscopy showed no evidence of neoplasm at the original site, but a small nodule on the posterior pharyngeal wall at the level of the arytenoid. Three 2 millicurie seeds of radon inserted.

18.2.34. Large mass of hard glands appeared on the right side, extending up to the parotid. The pharynx and œsophagus were clear. Block dissection of glands on the right side. The spinal accessory nerve and the cervical branch of the facial nerve were found to be involved in the mass and were divided.

19.2.35. No sign of any recurrence in throat or neck. Hyperæsthesia of lobe of right ear; paresis of right lower lip.

https://doi.org/10.1017/S0022215100041992 Published online by Cambridge University Press

Royal Society of Medicine

Leontiasis Ossium.—J. ANGELL JAMES.

E. D., female, aged 38.

History.—First seen *March 14th*, 1930, complaining of swelling over the right eye for seven years, with severe frontal headaches. No diplopia.

On examination.—Hard fixed swelling in roof of right orbit and adjacent anterior surface of frontal bone. X-rays showed very dense shadow in the orbit and anterior plate of frontal bone.

Operation, 28.5.30.—Great thickening of the bone over the orbital plate and anterior plate of the frontal bone ; a large amount of this dense bone was removed. The supra-orbital nerve and vessels were found buried in it. The remains of the frontal sinus cavity, with the occluded fronto-nasal duct were opened. There was no evidence of infection. The wound was then closed. Headaches were completely relieved.

10.6.30. Complained of diplopia. Wound healed well.

4.3.35. Has been very well until three months ago, since when the headaches have recurred. X-rays showed the frontal sinus cavity still visible, and increased density of bone shadow involving the whole roof of the orbit and the anterior plate of the frontal bone. Diplopia persists. The right eyeball is displaced outwards.

Osteomyelitis of the Frontal Bone.—J. ANGELL JAMES.

P. J., a boy, aged 4 years, first seen at Bristol Children's Hospital on *October 15th*, 1934. Temperature 101° F. Left acute ethmoiditis with marked swelling of the left upper lid, and marked proptosis of the left eye. Palliative treatment for twenty-four hours. Condition deteriorated.

Operation, 16.10.34.—Left ethmoidotomy. Orbital abscess drained. Ethmoidal labyrinth also opened into the nose. Bacteriological report on discharge ; *Staphylococcus aureus*.

18.10.34. Swelling and tenderness of both upper lids and forehead. Mr. R. R. Garden reported : " Right ocular movements full and free. No proptosis. Left ocular movements present, but restricted."

20.10.34. Œdema now involving both cheeks.

23.10.34. Fluctuating swelling from right pinna to glabella. Left side improving. An incision through the right eyebrow, exposing the bone over the frontal and ethmoidal region, showed no abnormality, but a subperiosteal abscess was found over the external angular process of the frontal bone. This was drained and continued to discharge until *November 1st*, 1934, when the drainage tube was removed.

14.11.34. Temperature had risen to 98·8° F. on several occasions. General condition very much improved. The child had been getting up and the swelling had subsided, except in the right

https://doi.org/10.1017/S0022215100041992 Published online by Cambridge University Press

temporal fossa. A small fluctuating swelling appeared over the glabella to-day.

Skiagram showed extensive osteomyelitis of the frontal bone, extending 6½ inches back from the glabella, to the left external angular process of the frontal bone, and to the level of the external auditory meatus on the right side.

Operation.—Under general anæsthesia a T-shaped incision was made ; the skin and pericranium were stripped down ; granulations were found to be sprouting through the outer table. The whole area of both tables was removed, with one-inch margin of healthy bone all round. There were numerous isolated extradural abscesses ; the dura was covered with granulations. The flaps were replaced, and held roughly in position with a few sutures, and the cavity packed with gauze soaked in acriflavine. Two blood transfusions were given during the course of the operation. Adhesion of the flaps to the dura was prevented until suppuration had ceased.

After a stormy convalescence the wounds finally healed, and on *May 4th*, 1935, the general condition was excellent. Skiagrams show evidence of new bone formation in the centre of the flaps on both sides.

Three Cases of Frontal Sinusitis treated by Harmer's Intubation Method.—E. MILES ATKINSON.

I.—J. W., male, aged 29.

Admitted to hospital with great swelling of left side of forehead and eye ; severe pain, but temperature not raised.

Operation, 30.1.35.—No pus was found in the sinus, but on opening it there was an escape of foul-smelling gas, and the mucosa of the sinus was intensely congested. No. 3 catheter inserted down infundibulum.

After a few days there was a profuse discharge which continued for some weeks. Swelling gradually subsided.

28.5.35. No. 7 catheter still in position. Discharge practically ceased. No pain or swelling for several weeks.

II.—T. S., male, aged 54.

In *October*, 1934, " influenza " ; since then frequent left frontal headache. During the two months before patient's admission to hospital the headache had been more severe, with occasional swelling of the left eyelid and discharge from the left nostril. Skiagrams all negative.

Operation, 5.3.35.—Lining mucosa markedly inflamed ; sinus contained glairy muco-pus. No. 3 catheter inserted.

After operation the swelling and pain disappeared and have not returned.

13.5.35. Wore tube for seven weeks, working up to No. 7. No further trouble.

https://doi.org/10.1017/S0022215100041992 Published online by Cambridge University Press

III.—E. F. S. O., male, aged 38.

History of influenza in 1917 with much frontal headache. Several attacks since, lasting from one to five weeks; last two attacks severe and incapacitating; some discharge from right nostril in last attack. Supra-orbital neuralgia diagnosed despite skiagram which showed a doubtful sinus.

First seen 1931 during an attack, when there was evidence of right frontal sinusitis; some œdema of middle turbinate, slightly tender to pressure; transillumination questionable; right frontal sinus opaque in skiagram.

Operation, 14.4.31.—Sinus contained thick, inspissated pus. No. 3 catheter inserted. Catheter gradually increased to No. 7; tube worn for three months.

Apart from some headache in *November*, 1933, during the course of a cold with bronchitis, the patient has had no trouble since the operation and has much improved in health.

June 15th, 1935

Chairman—W. M. MOLLISON, M.Ch. (President of the Section of Laryngology)

Obstructions of the Trachea

The opening papers read by Mr. LIONEL COLLEDGE and Mr. F. C. ORMEROD are published in this issue of the *Journal of Laryngology and Otology*, Vol. L, No. 12, pp. 897-908.

DISCUSSION.

HAROLD KISCH said he had had only one case of carcinoma of the trachea and that was four and a half years ago. The growth was an adeno-carcinoma. A swelling could be seen in the trachea extending, apparently, from the second or third ring to the fifth. A low tracheotomy was performed, and he saw the lower end of the growth. An opening was made higher in the trachea and needles of radium were threaded in. The growth disappeared, and periodically a tube was passed for examination. He was hoping to show the case before long as a five-year cure, but three weeks ago the patient complained of abdominal symptoms and he now had a large mass of growth in the abdomen. No recurrence could be seen in the trachea or the neck.

E. A. PETERS related two War cases. In the first there was a closed gun-shot wound at the base of the neck; the patient was cyanosed and the cricoid was close to the sternum. At first it appeared that a rapid laryngotomy and the passage of a König's tube

https://doi.org/10.1017/S0022215100041992 Published online by Cambridge University Press

would be necessary. Fortunately, however, opening the old wound allowed a collection of pus to escape, with immediate relief.

In the second case a bullet was located, by a skiagram, in the hyoid region but could not be localized by laryngological examination. A general anæsthetic was given, and unfortunately the patient died without recovering consciousness. *Post mortem* a ·303 bullet was found across the carina, blocking both bronchi. If the patient had been sitting up when the bullet entered the trachea, it would have dropped into the right bronchus.

WALTER HOWARTH said that he would mention one of his own cases which illustrated a point that Mr. Ormerod had mentioned, namely that sometimes, though the lesion might be in the œsophagus the symptoms were mainly tracheal. The case had occurred a long time ago. The patient, a young girl, had been sent to him because of some dyspnœa and a very persistent cough. On examining the air-passages he had found very little. On passing the œsophagoscope he found a gumma, high up on the anterior wall of the gullet and involving the trachea. Probably there was some leakage through, though he could not detect any. Under antisyphilitic treatment the condition cleared up.

Another interesting case was one which he had under observation at the present time—that of a young man, aged 30, who for about eight months had had stridor, which was greatly increased when he put his hands up over his head. Just above the clavicle a hard mass could be felt. The X-ray examination was somewhat indefinite, but showed a slight shadow just below the level of the sternum, and this compressed the trachea to the right. The bronchoscope showed a definite bulge of the tracheal wall. He had not yet investigated it further. He was wondering whether it was an endothelioma of the thymus, or whether it was an upper lobe carcinoma of the lung, pressing upwards. He did not think it was a retrosternal goitre.

SYDNEY SCOTT said that since the Great War he had lost three personal friends from conditions such as those which were now being discussed.

There must be in these cases an upper bronchial and a lower bronchial compression ; he did not think a growth in the lungs alone could produce such a condition.

Mr. Colledge had referred to attempts made to pass a tube into the distal opening of the bronchus for the relief of this most distressing dyspnœa. Even if the ultimate outlook of life were bad, this might relieve the patient of the dreadful distress, which in some cases persisted for months. He felt that the possibilities of approach through the chest into the bronchi had not yet been exhausted.

W. STIRK ADAMS said, that in Mr. Woodman's absence, he would give the further history of the second case which Mr. Colledge had mentioned. The patient had continued well for nine or ten months

https://doi.org/10.1017/S0022215100041992 Published online by Cambridge University Press

after the first application of the radium to the large mass in the neck. She had then had a recurrence of the tracheal obstruction, and re-entered hospital. At that time there was a small swelling on both sides in the base of the neck. Another external application of radium had been given, and the stridor had rapidly disappeared. This improvement had lasted a few months. Then a further recurrence of the tumour took place in the base of the neck and upper part of the chest, and ultimately the patient died from this cause.

The Sinuses in Relation to Eye Disease

By E. R. CHAMBERS (Bristol)

If tuberculosis, syphilis and trauma are excluded, a great majority of all ocular infections are due to some endogenous focus, and for many years it has been our practice to subject patients with these conditions to a thorough investigation, in the hope of finding such a focus. There is no doubt that the nasal sinuses can be held responsible in a large number of cases, and we have been struck by the fact that these cases need not show any obvious nasal trouble, and that X-ray findings, if negative, cannot be relied upon.

It must be remembered in dealing with these ocular infections, particularly those involving the cornea, that no time must be lost if serious impairment of sight, or perhaps blindness, is to be prevented. I can recall many instances in which, had the sinuses been investigated earlier, there is no doubt that serious impairment of vision might have been prevented.

To demonstrate the association between nasal and ocular infection, it is only necessary to enumerate a few ocular conditions which have not responded to local treatment to the eye, but have cleared up entirely when the nasal infection has been treated.

Conjunctiva.—There is a mild but chronic type of conjunctivitis chiefly affecting the lower lid ; there is very little discharge, but the patient suffers from itching and burning, which is aggravated by bright light, dust and wind.

It is characteristic of this infection that it will clear up almost completely with simple ocular antiseptic treatment, but recurs directly the treatment is stopped. Many of these cases go on to a thickened, velvety condition of the conjunctiva of the lower lid, partly as a result of the recurrent attacks, but largely owing to over-treatment.

This type of conjunctivitis is in many instances due to nasal infection which is often overlooked, and I have known many cases of complete recovery in which, the nose having been dealt with, no further ocular treatment has been necessary.

https://doi.org/10.1017/S0022215100041992 Published online by Cambridge University Press

Sclera.—Episcleritis is an infection of the superficial layers of the sclera and is characterized by chronicity and recurrences. For many years this condition has been ascribed to rheumatism, because it is usually associated with joint pains or neuritis. Whether it is a coincidence or not we have found that many of these cases harbour an infected antrum, and that the elimination of this focus has resulted in a complete cure.

Cornea.—Any type of keratitis can apparently be caused by endogenous sepsis, but there is one type that seems to be caused by sinus infection more than others. It is not unlike the interstitial keratitis of syphilis, but the opacity in the cornea is more patchy and it occurs in adults.

First one eye is attacked and it remains localized in this eye, often until the cornea contains very little transparent tissue; then the other eye is involved.

In such cases the sinuses should be carefully investigated. In a case seen recently the sinuses were undoubtedly the cause, but had not been investigated, with the result that when we saw the patient the sight in one eye was lost and the condition was beginning in the other. Treatment of the sinus infection stopped further progress.

Iridocyclitis.—This is an involvement of the iris, ciliary body—and, often, choroid—by an infection from a focus outside the eye. Looking back over the years since we have carried out general investigation in these cases, I have no hesitation in saying that nasal sinus infection has played a large part in this condition, and it is here particularly that these sinuses should be investigated early. Reliance should not be placed solely on local ocular treatment.

Choroid and retina.—We see such conditions as choroiditis, retinal hæmorrhages and exudates, some of which are undoubtedly toxic, so that full investigation should be made in order to discover a possible cause, but these conditions tend to clear up so often when nothing is done that it is difficult to say that a focus of infection here or there was the actual cause.

There is, however, one condition in which I think sinus infection may play an important part. I refer to those cases of sudden loss of central vision in young and apparently quite healthy subjects. The ophthalmoscope shows a small hæmorrhage in the retina at the centre of vision. Such cases are not uncommon, and I regard them as due to an endogenous infection, the toxins from which have caused damage to the capillary wall, with a resulting hæmorrhage, the source of the infection often being found in the nasal sinuses or teeth.

The optic nerve.—Retrobulbar neuritis does not come within the scope of this discussion, as the affection of the nerve is behind the eyeball but there is a condition which affects the nerve-head and presents a definite ophthalmoscopic appearance. This is a papill-œdema of the optic nerve where the swelling may reach 4-6 dioptres.

https://doi.org/10.1017/S0022215100041992 Published online by Cambridge University Press

It usually occurs in subjects between the ages of 20 and 40 and is more common in females than in males. The swelling of the optic discs is often so great that suspicion arises of some intracranial condition which has caused a rise of the intracranial pressure; but the fact that it is unilateral and neurological findings negative excludes this.

Owing to the œdema that may exist in the optic nerve-head, permanent damage may be done and the patient left with a contraction of the visual field. I have advised that the sphenoidal sinus should be investigated in these cases, that it should be done early and, even when examination gives negative results, the sinus should be washed out.

It is true that the swelling of the optic disc tends to subside without treatment, but this takes many weeks, during which there is permanent damage to the optic nerve as is shown by the contracted visual fields. Early attention to the sphenoidal sinus may materially shorten the disease and so reduce the chance of permanent damage.

Nasal Sinusitis and Infections of the Eyeball

By E. WATSON-WILLIAMS (Bristol)

[*Abstract.*]

NASAL sinusitis is easily overlooked unless the search for it is included as a routine. In the first place, the sinuses are out of the ordinary lines of inspection. In the second, there may be no history pointing to nasal disease, or any nasal symptoms, and there may be no clinical evidence of sinus infection when an inspection is made. A vigorous local defensive reaction seems to protect against toxic absorption. On the other hand, if there is sinus infection with no or very little local defensive reaction, there may be little to attract attention to the nose, yet it is in these circumstances that the patient suffers from toxic absorption with arthritis, fibrositis, depression, and often the patient with eyeball disease comes into this category. Further, not only is there often no clinical evidence of disease in the nose, but even X-rays cannot be trusted to exclude this type of infection. In these circumstances the only method that offers a satisfactory means of excluding sinus infection is to pass a cannula into the sinus, to wash out the cavity with sterile water which can be sucked back through the cannula, and to examine the washings microscopically and bacteriologically. In all the cases under my care the technique of Dr. P. Watson-Williams has been followed.

As Mr. Chambers has emphasized, it is important, if permanent damage to vision is to be avoided, that the sinus examination should be undertaken early.

https://doi.org/10.1017/S0022215100041992 Published online by Cambridge University Press

In treatment, although disinfection of the sinuses may produce a rapid improvement, it is nearly always necessary to provide per-nasal drainage of the affected cells if recurrences are to be avoided. There is one exception to this rule, the case of young children, in whom it will often suffice to remove adenoids and to wash out the infected sinuses. Chronic sinusitis is common in children, and not very rare even before the third birthday. This type of infection, with perhaps no local signs, may persist for years unsuspected, occasioning repeated attacks of eye disease and often doing permanent damage before attention is directed to the original and persisting cause.

When the question is raised whether the sinus infection is really the cause of, or only accidentally coincident with, the eye disease, the test to apply is whether when the primary focus is treated, the eye-disease, hitherto intractable, improves with great rapidity and does not recur. Some years ago I published a series of six cases which fulfilled this test* : of these, one is untraced, the later history of another is given below, and in the others the patients have remained well. The case reports given below have been chosen to illustrate the points mentioned. I must apologize for three of them being reports of recent cases, which I had not noticed until they had been printed in the summary of my paper, but I have every confidence that the results of treatment will be as good in them as in the others.

Illustrative Cases.

Wassermann reaction negative in all cases. Examination of teeth, vagina, urine and fæces : negative.

I.—*Recurrent keratitis.* Miss E. P., aged 52, complained in *October*, 1931, of recent loss of vision.

On examination.—Old corneal opacities from former keratitis ; patient edentulous. No nasal signs or symptoms, throat condition negative ; history of nasal discharge at beginning of eye-disease many years before. X-ray report " Sinuses clear ; skull thick ". I thought, however, that the condition of the left antrum was suspicious, and therefore I washed out the sinuses. The washings were macroscopically clear, but examinations showed that both sinuses contained muco-pus which grew streptococci ; the sphenoids were clear and sterile. The vision improved greatly after the washing, and the patient went home, with instructions to return at once if there was any further trouble. Severe recurrence of keratitis began in *April*, 1932. I again washed out the maxillary sinuses (washings clear and sterile) and in view of previous history opened both sides. I also removed the tonsils as a precaution ; culture showed *Streptococcus viridans* and *Staphylococcus albus*. The eye rapidly improved and the patient went home ten days afterwards.

* *Lancet*, July 9th, 1932, 73.

https://doi.org/10.1017/S0022215100041992 Published online by Cambridge University Press

Dr. Toye of Bideford writes (*May*, 1935): "No nasal or throat symptoms; eye still damaged by old keratitis; just occasionally has threatened attack of inflammation. Greatly improved by the operation, very much pleased by result."

II.—*Recurrent scleritis.* Miss K. C., aged 35, referred to me, by Mr. Chambers, *February* 2nd, 1935, with scleritis; she had had several attacks during the preceding three years. No history or symptoms pointing to nose or throat infection. Tonsils small and clean; pharynx normal except for slight lateral pharyngitis. Nose appeared absolutely normal; but X-rays showed opacity of left antrum. Right antrum felt "velvety"; washing contained a little liquid mucus, smear = "mucus"; culture: a staphylococcus; left antrum gave the polypus sign, and the washing contained excess of mucus (report as for right antrum); sphenoidal sinus (same cell, probably right, entered from both sides) and left posterior ethmoidal cell, clean washings, sterile. Antrum opened on both sides. Mucosa of right showed gross polypoid changes; that of left, polypoid; large polypus in cavity; reported "mucosa œdematous, much round-celled infiltration; simple myxomatous polypus". A week later the patient went home, her eye having become practically normal.

May, 1935. Quite well; no symptoms.

III.—*Recurrent left iridocyclitis since childhood.* Miss A. B., aged 34, in *January*, 1935, complained of pain and redness with dimness of vision, on and off since infancy; active iridocyclitis. Right eye blind; old iridectomy. Nose, rather dry, no symptoms, small polypus high on left side. Skiagram: Left antrum opaque, ethmoid doubtful.

Right antrum washed out; clean washing; smear negative; culture sterile; left antrum contained thick pus, gave polypus sign (smear = muco-pus, culture sterile). Left antrum, opened. Mucosa grossly polypoid. Left ethmoid opened. Twelve days later eye much improved. May *27th*, 1935: Quite free from all nasal and left eye symptoms. Vision good.

IV.—*Chronic conjunctivitis in child aged* 3. Conjunctivitis and blepharitis almost constantly since age of three months. History of suppurative otitis as nursling, but colds rare; never sore throat or nasal discharge. *May*, 1935: Examination of nose and throat: negative. Examination of sinuses: right and left antra full of mucus. Both antra washed out only. Tonsils and adenoids removed.

Reports.—Antra: Trace of muco-pus; culture, streptococcus. Adenoids: streptococcus + + +, *Staphylococcus albus* +. Tonsils: Streptococcus +, *Staphylococcus albus* + + +.

Discussion.

Alex R. Tweedie asked whether Mr. Watson-Williams had any special technique for culturing the effluent in these cases, as he himself had been unsuccessful in attempting to culture specimens from the sinuses under these conditions. He had lately been testing the culturable content of the nasal mucus, and he had found that generally when such content was culturable the growth was more vigorous on media with a

https://doi.org/10.1017/S0022215100041992 Published online by Cambridge University Press

reaction at pH 7·4 and 8·8. Except for *Staphylococcus aureus* and *albus* no growth was ever obtained on a medium at pH 6·5. He considered that the *Staphylococcus aureus* was definitely pathogenic but usually regarded the *Staphylococcus albus* as due to contamination.

E. A. PETERS said that the possible methods of eye infection were by the air and blood; also along the lachrymal duct either by direct extension or by propulsion. In the case of a patient of his who inflated the lachrymal sac when blowing the nose there was no eye trouble. He believed that the mucous membrane of the lachrymal duct followed the condition of the mucous membrane of the nose.

J. F. O'MALLEY said the papers seemed to show a strong association between ophthalmic and sinus conditions, but there was some difficulty in accepting this from all aspects. For instance, as Mr. Peters had suggested, sinusitis following sepsis in the nose might be a continuous one—an ascending infection; but in regard to iridocyclitis or papillœdema, it was necessary to view it from the standpoint of an endogenous infection, as in that case there could be no continuity, except that there might be a possible œdematous extension from the posterior ethmoidal cells. It was a different matter if there was ulceration, or osteitis in the wall of a sinus, or a granuloma, or an ulcerated focus on the tonsil. He had had cases in which such an association as that described seemed definite, but they were all tonsil cases, cases of iridocyclitis which were referred to him by the ophthalmic surgeon, the causes for which were classed, in the old days, as rheumatic. As Mr. Chambers had remarked, there were also other symptoms, suggestive of rheumatism, and the tonsils were held to be responsible. On removal of the tonsils the iridocyclitis cleared up, and remained absent. These cases tended to clear up spontaneously, thus emulating the tendency of the underlying infection. With the occurrence of a fresh focus, there was a recurrence of the remote lesion.

T. RITCHIE RODGER said that Mr. O'Malley had made an important point, and one well within the scope of this discussion, namely, the relative importance of sinusitis and tonsillar disease. Mr. Chambers' paper did no more than state that the sinuses were responsible for a large number of eye affections. Ophthalmologists in his (the speaker's) hospital were continually sending over to him cases of this kind, and for a long time the question asked was whether he could find anything wrong in the sinuses. Three times out of four his report, after X-ray examination, transillumination, and washing out of the antrum, a regular procedure, was that the sinuses were normal, but that he could squeeze a little pus out of one or both tonsils. The formula of the request had now been changed, and the query now was, could he find any septic focus? Probably there was a natural inclination to think first of the sinuses because of the close contiguity of the parts, but there was no continuity in the case of iridocyclitis and those deeper affections of the eye to which Mr. Chambers referred. It was a blood-borne infection. He hoped the teeth and tonsils would be examined with equal care.

A. B. PAVEY-SMITH said that all the illustrative cases mentioned by Mr. Watson-Williams were recent; it would be valuable if he would

https://doi.org/10.1017/S0022215100041992 Published online by Cambridge University Press

report on those cases again in six months' time. Sometimes a temporary improvement occurred for a month or two after the operation, and then six months or so later there was a complete relapse, the improvement being due to some alteration in the systemic condition other than the elimination of the particular infection.

He wondered whether in the five cases quoted Mr. Watson-Williams had experienced what sometimes occurred in dealing with focal infection, namely, a flare-up of the systemic condition. He (the speaker) had met with this in cases of arthritis after removal of tonsils, and in such cases regarded it as evidence that he had " touched the spot ".

PATRICK WATSON-WILLIAMS said that the papers which had just been read possessed a special and profound interest for him, because he had first started on the subject of sinus exploration towards the close of the last century, when Mr. Richardson Cross, then a leading ophthalmologist in Bristol, used to refer to him patients suspected of having sinus infection causing the eye conditions.

Hence when such cases were referred to him it was in order to avoid subjecting patients to an operation—which in those days was regarded as risky—unless there was clear evidence of infection of the sinuses, that he devised the method of obtaining suction samples from suspected sinuses, especially the sphenoidal. By investigations in the *post mortem* room he had found that it was easy to enter the sphenoidal sinus directly through the anterior wall. While in many cases there was no evidence of infection, on culture of the material, in others the evidence was definite. Then there arose the question of contamination, and he had cytological examinations made, because if there was evidence of inflammatory reaction in the sinus from which the specimen had come, it was evidence that the organisms obtained on culture were not contaminations.

Organisms were often present in the lymph-vascular spaces in the submucosa, and these organisms and their toxins frequently spread through the lymph spaces. Hence continuity was not by surface infection, but by the lymph and the vascular connections. It was always important to get down to the parent infection, which usually continued to dominate the case, and whatever was done to subsidiary foci, the case would not be cured so long as the original or parent infection remained virulent. Probably the majority of cases had started in early life and had then become established. He believed, more and more, that many of the cases looked upon as examples of toxic reaction were really associated with the actual presence of organisms, whether in the sciatic nerve or in the eye.

https://doi.org/10.1017/S0022215100041992 Published online by Cambridge University Press