RECONSTRUCTION

The geniohyoglossi are brought together with sutures, care being taken that the first stitch completely shuts the opening into the mouth. The tissues about the hyoid bone are approximated, but there is no necessity to attempt to bring the cut edges of the bone together. A

FIG. B.—The dissection nearing completion.

small drainage tube is inserted and the skin closed, mainly with Van Herff's clips, which in my experience is better than any other method of approximating the skin, as it gives the most satisfactory scar.

When the tract is a long one, as when the orifice is situated at some distance below the hyoid bone, the operation is considerably facilitated by making a second transverse skin incision above the first. For instance, in Case III (see below) the fistula was dissected out until the hyoid bone was reached, then a second skin incision was made at this level, and the dissected tract threaded through from the lower to the upper level, after which the dissection was begun anew.

THREE CASES OF THYROGLOSSAL FISTULA TREATED BY SISTRUNK'S OPERATION

CASE I

A married woman of 31 had a thyroglossal cyst excised at the age of 14. Shortly afterwards a fistula appeared in the region of the hyoid bone. Two years later the fistula was excised, but no sooner had the stitches been removed than excretion commenced to issue from the centre of the wound. For fifteen years the fistula continued to discharge, and she wore a little pad to absorb the moisture. Recurrent attacks of inflammation occurred at varying intervals. She presented herself as an out-patient during one of these attacks. After the inflammation had subsided, the indurated scar of the previous operations was excised and Sistrunk's operation performed. The result was highly satisfactory.

CASE II

A schoolgirl, aged 12, came to me with a history that one year previously a thyroglossal cyst had been excised from below the hyoid bone. Almost at once a fistula developed just below the hyoid bone. Repeated attacks of inflammation had occurred during the past few months. Sistrunk's operation was performed. The wound healed well. On inquiry twelve months later it was reported that the wound had healed perfectly.

CASE III

Mrs. S., aged 28. At the age of 7 a thyroglossal cyst had been operated upon and a fistula resulted. Three further operations were performed in her girlhood—apparently local excision of the area or incision during the acute attacks of inflammation. For the previous nine months, she stated, the fistula (Fig. 1, Special Plate) had leaked continuously. Sistrunk's operation was performed, a second transverse skin incision being made at the level of the hyoid bone. Intratracheal ether was given in this case, and I formed the opinion that it is the best anaesthetic for the operation.

It is interesting to note that no disability follows removal of the centre of the hyoid bone. Within forty-eight hours the patient is able to protrude the

FIG. C.—The path of the dissection after passing the hyoid.

tongue normally and to swallow without pain. The body of the hyoid bone apparently regenerates, for in one of my cases one year after Sistrunk's operation had been performed for a thyroglossal cyst a radiogram showed the hyoid bone intact.

REFERENCE

- ¹ Bailey, Hamilton: *Brachial Cysts*, 1929.

PREVENTABLE DENTAL DEFORMITIES*

BY

R. H. McKEAG, M.B., B.Ch., B.DENT.Sc.

(With Special Plate)

The dental surgeon is called upon to correct rather than to prevent malpositions of the teeth. So often does this occur that the accepted classifications of mal-occlusion, or abnormal relationship of the teeth, ignore the cause entirely, and are framed to facilitate treatment. By the time the dentist sees the patient it is usually the case that the mere removal of the cause is insufficient to bring about a cure, and indeed often the original cause has itself disappeared by then.

On investigating the subject I was amazed to find that the vast majority of orthodontic cases in my practice could have been prevented had the defect been noticed at an early stage by someone having the necessary knowledge and authority. I am therefore proposing to put before you the main causes of preventable dental deformity, and to illustrate some of the results following neglect of simple precautions. The models which I ask

* A paper read at a meeting of the Bath and Bristol Branch of the British Medical Association in conjunction with the Bristol and District Section of the British Dental Association.

you to examine are not those of particularly bad cases, but no exaggeration is required to demonstrate the deformities which occur. They are all from patients in my own practice seen within the last few months. There is no need to dwell on the ill effects of the deformities on the child's physical and mental welfare.

MOUTH-BREATHING

The first important cause of deformity is mouth-breathing, which may be due to habit or to some temporary or permanent obstruction to nasal respiration. It is most necessary to distinguish between habit, probably formed during a temporary obstruction due to catarrh, and one of the more permanent partial obstructions which come into the domain of the nose and throat specialist. My rough-and-ready method of differentiation is to tell the child to keep his mouth tightly closed and to jump on and off a low hassock a number of times. If the child can do this exercise with the mouth closed for a reasonable space of time I am convinced that there is no obstruction. If not, I advise a visit to the doctor. I admit that this test takes no account of defective heart or lungs, but these are as much outside of the dentist's province as are adenoids or a deflected nasal septum. Where no obstruction to normal breathing is present the child should be encouraged to breathe through the nose, and the parent can give gentle reminders when necessary. If this is insufficient to break the habit, the dentist can make a light vulcanite plate to be worn at night, fitting in front of the incisors and behind the lips.

The commonest type of deformity resulting from mouth-breathing shows a narrow, high upper arch, protruding upper incisors, and a receding chin, and is often followed by serious periodontal disease of the lower incisors, and later of the upper ones also. The normal negative pressure in the mouth being lost, the palate develops in an upward instead of a horizontal direction, and consequently narrowing or lack of development of the nasal air passages occurs. When this bony change has taken place the removal of the original obstruction does not effect a cure, as another obstruction has taken its place. It is thus of the greatest importance that enlarged tonsils and adenoids should be removed at the earliest possible moment.

Mouth-breathing associated with inflammation of the tonsils may produce a rarer but more disfiguring condition in which the lower teeth come outside the upper, and the child has a "bulldog" appearance. The reason for this is somewhat obscure, but it seems that the tongue and lower jaw are pulled forward by the muscles to avoid pressure on the inflamed tonsils by the posterior part of the mandible and the palatoglossus muscle, which is attached to the side of the tongue and forms the anterior part of the fauces. The anterior relationship of the lower jaw, if maintained for some time, becomes fixed by the interlocking of the cusps of the teeth.

THUMB-SUCKING, LIP-BITING, AND TONGUE-BITING

Thumb-sucking, and, to a lesser degree, lip-biting and tongue-biting, are responsible for another large group of deformities. In these the action is purely mechanical and easily followed. Thumb-sucking produces a splaying forward of the upper front teeth, and gives the unfortunate child a vacant appearance, which is a perpetual and dreadful handicap in his life. Lip-biting is very common, and may be associated with tongue-biting; the latter by itself usually causes a gap between the upper and lower front teeth, but the child may habitually keep the tongue between the back teeth of the upper and lower jaws on one or other side, with a resultant displacement of the teeth on that side.

PREMATURE LOSS OF TEETH

The third main group is caused by the premature loss of teeth, either deciduous or permanent. When the temporary teeth are lost early through decay, or from any other cause, the growth of the jaw is arrested and crowding of the permanent teeth follows. This crowding not only produces mal-occlusion and the consequent lessening of chewing and biting power, but it renders the teeth much more liable to decay, as the great natural cleanser of the mouth, the tongue, is obstructed in its work, and corners and angles in which food may lodge and decompose are provided. Even now there are hundreds of thousands of parents who firmly believe that the loss of the milk teeth is unimportant, because they will be followed by the second set. The proper growth of the jaws is to a very great extent dependent on the presence of the teeth. Where a temporary molar is lost on one side before its time, the permanent molar in its growth drifts into the space provided, and the permanent bicuspid, which should occupy the position of the deciduous molar, is crowded out of the line. The bone of the jaw develops less than on the side where the deciduous teeth have been retained until the permanent teeth under them are ready to erupt.

The loss of the lower first permanent molars, and often the upper ones also, at an early age is extremely common. These teeth erupt when the child is about 6 years old, and are not noticed as permanent teeth by the parents, as none of the temporary teeth are shed until a year later, and the temporary molars are not shed until the child is 10 or 11. These first permanent molars are especially liable to decay for a variety of causes. They have deep furrows on the face of the crown which trap food, and these furrows are often badly calcified. Their calcification takes place during the first two years of extrauterine life; the newly born baby does not always take to its food at once, nor is the process of weaning always unattended by digestive troubles. The eruption of the deciduous teeth also is, on occasions, a source of interruption to the steady flow of nutriment to the calcifying teeth. The loss of the lower first permanent molars results in a falling back of the lower front teeth, which is extremely difficult and often impossible to cure. The lower lip then has room to get behind the upper front teeth and pushes them out, the result being a greater deformity than even that caused by thumb-sucking.

OTHER CAUSES OF DEFORMITY

I purposely avoid mention of direct damage done in the mouth by the surgeon—namely, in certain operations for cleft palate—as this is always, I am sure, unavoidable, but there is one slight surgical operation which might with advantage be performed more frequently by any doctor who happens to notice the condition. I refer to the cutting of the frenum of the upper lip when this is attached too low down on the alveolus. When this happens and is unremedied the two central incisors are unduly separated.

Another cause, or contributory cause, of dental deformity is lack of muscular development of the tongue and lips. The position of the teeth is controlled much more than was formerly thought to be the case by muscular action. This should be borne in mind when deciding on the time and method for hare-lip operations.

SUMMARY

Mouth-breathing, whatever its cause, can often be noted and steps taken to cure it by the doctor, but this must be done at an early stage. Similarly, thumb-sucking, lip-biting, and tongue-biting can be investigated by the doctor, and the parents warned of the probable conse-

quences. There is no need to emphasize the necessity for care in the feeding of the mother and young child. Milk and cod-liver oil help to produce well-calcified teeth. Hard food develops the jaws, and allows room for the full complement of thirty-two teeth. Apples and other fruit cleanse the teeth from acid-producing carbohydrates. Should decay occur, whether it be in deciduous or in permanent teeth, the sooner the child is brought to the dentist the better. It is far easier for the medical profession than for the dentists to educate the public and stamp out the wicked fallacy that the first teeth do not matter much.

The advent of the specialist has robbed us to some extent of the family doctor who cared for his patients from the cradle to the grave, and whose advice was as freely given to avoid disease and deformity as to effect a cure when they were present; but even now there are many opportunities in which a few timely words from the doctor could save his patients from many of the deformities of mal-occlusion, which are very real, and none the less serious because they are so common.

SEPTIC THROMBOSIS OF THE LATERAL SINUS IN CHILDREN

WITH REPORT OF A CASE COMPLICATED BY METASTATIC INFECTION OF THE HIP-JOINT: RECOVERY AFTER SEVEN OPERATIONS AND PROLONGED ILLNESS

BY

DOUGLAS GUTHRIE, M.D., F.R.C.S.

SURGEON TO THE EAR AND THROAT DEPARTMENT, ROYAL HOSPITAL FOR SICK CHILDREN, EDINBURGH

AND

D. STEWART MIDDLETON, M.B., F.R.C.S.

ASSISTANT SURGEON, ROYAL HOSPITAL FOR SICK CHILDREN, EDINBURGH

(With Special Plate)

Septic thrombosis of the lateral sinus is rare in childhood. In a series of 500 consecutive cases of middle-ear suppuration (reported by one of us¹), including 80 cases

AN UNUSUAL CASE OF THROMBO-PHLEBITIS OF THE LATERAL SINUS

E. G., aged 8, was the youngest child of a family of six, and had always been healthy until she had scarlet fever in April, 1929. She then had discharge from the left ear, which continued off and on afterwards. Adenoids and tonsils were removed in February, 1930. Eight days before admission to hospital she was seized with vomiting, headache, and fever. The family doctor treated this as gastric influenza, which was prevalent in the district. The vomiting abated, but the headache continued, and the day before admission she had a temperature of 101° F. and a severe rigor, during which she was cyanosed and had a feeble pulse. Absence of ear discharge and of mastoid tenderness was remarked upon by the doctor. Admitted to Meikleham ward, September 24th, 1930.

September 24th, 1930.—Patient has vomited once since admission, is very drowsy, and resents being moved. Pupils both equally dilated. Knee-jerks feeble. No ankle-clonus or Babinski. Slight stiffness of neck muscles on making passive movement. Glands on left side of neck behind angle of jaw slightly enlarged and tender. A little fetid sticky pus in left ear. Tympanic membrane not clearly visible, but seems to show large central perforation. No mastoid tenderness, swelling, or oedema. On account of tenderness in neck and rigor, septic sinus thrombosis suspected and operation advised.

First Operation, September 24th (9 p.m.)—Under ether anaesthesia usual mastoid incision was made, and prolonged downwards along anterior border of sterno-mastoid muscle. Superficial tissues appeared normal. On removing outer mastoid wall, black fetid fluid escaped. Sinus found to be collapsed, with greenish, sloughy appearance, extending from knee of sinus to jugular bulb, which was also full of fetid black fluid. Upper end of sinus exposed until healthy blue wall seen. Bled freely on opening here. Iodoform worsted packing inserted. Internal jugular vein ligatured in neck with some difficulty, owing to small dense mass of lymphatic glands. Vein was washed through from above with saline, dislodging dark turbid fluid and a little clot. This fluid was afterwards found to contain *Streptococcus haemolyticus* in pure culture. Tube left in upper end of jugular vein in neck. Radical mastoid completed, but no plastic treatment of meatus. White caseous material filled the tympanum. No ossicles found. Bipp applied and wound loosely packed without stitching.

September 25th.—Vomited once this morning. No rigor. Is dull and listless.

Temperature chart of E. G. during the first three weeks after admission to hospital.

of acute mastoiditis, there were only two cases of septic sinus thrombosis. The mortality of this complication of middle-ear suppuration at all ages is said to be at least 50 per cent. in spite of early operation, and in children it is probably more fatal than in adults. At the Royal Hospital for Sick Children, Edinburgh, where 150 to 200 new cases of middle-ear suppuration are treated annually, there have been only five cases of sinus thrombosis during the past three years. One patient was a boy aged 11 years, and the other four were girls, aged 6, 8 (two cases), and 9 years. Three of the patients died and two recovered. Brief notes of each case are given at the end of this paper. The child whose clinical history we are about to relate recovered after a long and tedious illness. Her case presented such unusual features that we decided to place it on record.

September 26th.—Rigor this afternoon, with rise of temperature to 103°. Pulse more rapid (128). Collosol manganese (1/2 c.cm.) given intravenously. (This was continued daily for a week.)

October 1st.—Oscillations of temperature each day since last note, but no rigors. General appearance a little better. Packing removed from upper end of sinus, and a drachm of dark pus evacuated. Syringed through from bulb to lower wound in neck; fetid pus. Tube reintroduced into jugular vein.

October 2nd.—Not looking so well. Two rigors. Temperature 104° to 105°. It was therefore thought advisable to investigate the upper end of the sinus.

Second Operation, October 2nd.—Scalp incision prolonged backwards. Bone removed over sinus, when it was found that the thrombosis had extended to within half an inch of torcular end. Sinus opened and clot turned out. Free bleeding obtained from upper end, which was plugged with iodoform worsted. Syringed with saline from jugular in neck

HAMILTON BAILEY: COMPLETE ERADICATION OF THE THYROGLOSSAL TRACT

FIG. 1.—A long-standing thyroglossal fistula. The semilunar fold is characteristic.

FIG. 2.—Lateral radiogram after an injection of lipiodol into a thyroglossal fistula. The tract passes up to the foramen caecum. (Radiogram by Dr. H. N. Crowe, Worcester.)

R. H. McKEAG: PREVENTABLE DENTAL DEFORMITIES

FIG. 1.—Results of adenoids. Note narrow crowded arches, protruding upper incisors, corners for food to collect in which the tongue cannot clean. This patient has a receding chin and a vacant perpetual grin.

FIG. 2.—Result of thumb-sucking. Note protruding front teeth. The appearance of an otherwise good-looking girl is entirely spoiled by this deformity.

R. H. McKEAG: PREVENTABLE DENTAL DEFORMITIES

FIG. 3.—Result of lip-biting and tongue-biting. Note protruding upper left central due to lip-biting, and complete loss of articulation on the left side, due to keeping the tongue between the teeth.

FIG. 4.—Same as Fig. 3, showing the normal articulation on the right side. The patient has acquired considerable mobility of the lower jaw and can bite on both sides, though not using both together.

FIG. 5.—Result of premature loss of deciduous teeth. Note extreme crowding of teeth. The lower front teeth have fallen back and have grown too long in trying to reach the upper teeth; instead of biting on the upper teeth they bite on the mucous membrane of the roof of the mouth.

FIG. 6.—Same as Fig. 5. Note lack of growth of upper alveolus. The gum in the front of the lower jaw is very inflamed and the teeth are coated around their necks with tartar.