circle is all important, especially in younger children; the effect on the general system—on the blood and the nervous system is vicious. It prevents growth and development of the jaws and the face and nose as well. We all have seen children develop very rapidly after correction of these conditions.

DR. G. HUDSON MAKUEN: I had expected that more would be said in the discussion with reference to my note on the effect of hypertrophied tonsils on the alignment of the teeth and the development of the alveolar arches. I have been able to find no reference to this point in the literature, and I should have liked to have had a fuller expression of opinion on it. It should be borne in mind that these large tonsils are sensitive to pressure, as a rule, only when they are acutely diseased, and only a little pressure sometimes is required to determine the position of the teeth and the shape in the alveolar processes. The relation between the faucial tonsils and the cervical glands is a very close one, as has been shown by anatomic dissections, and one observer, after the removal of some cervical glands, actually passed a probe from the wound in the neck into the faucial tonsillar fossa. The other day I removed the tonsils of a small child having a bunch of cervical glands nearly as large as my fist, which almost entirely disappeared in the brief space of one week after the operation. In other cases glandular enlargements in the neck may and do occasionally increase immediately after operations on the tonsils, which fact shows the close relationship existing between these structures.

As to the comparative merits of tonsillectomy and tonsillotomy, I would say that there seems now to be but little discussion. In the recent meetings of the two largest American laryngologic societies, only one man of the three hundred lifted up his voice in favor of the partial removal of the tonsils, and he was one who had long been a practitioner of the specialty, and he was loath to give up his older methods. Only diseased glands, of course, should be removed, and when we have once decided on the operation, I think we should remove all the diseased tissue, and we should not be deterred because the operation is more difficult or because there is likely to be more hemorrhage. With reference to this last objection, I may say that there are those who think the hemorrhage is greater after tonsillotomy than after tonsillectomy, because blood vessels cut through in fibrous tissue do not contract so readily as those not so surrounded. The operation is not a simple one, but requires some skill and dexterity. The removal of only a portion of the tonsil, beyond giving more breathing space, may do more harm than good by making of the diseased stump a more fruitful source of infection.

Dr. Brown's point with reference to submerged tonsils is a good one. The tonsil that protrudes into the pharynx and hangs, as it were, by a pedicle, is probably the least harmful, because it has better drainage and it does not admit of so much absorption of infected material in the general system. In reply to Dr. Talbot, I am of the opinion that foul detritus exuding from diseased tonsils must have a more or less injurious effect on the teeth, and from what he has just said, I gather that he agrees with me thoroughly on this point.

Clinical Notes

GONORRHEAL EXOSTOSIS OF THE OS CALCIS

REPORT OF CASES

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Baer,¹ in 1906, called attention to certain cases characterized by pain over the plantar surface of the heel, due to a chronic inflammatory change, of gonorrheal origin, located in the flexor brevis digitorum muscle, with secondary new formation of bone or exostosis at the attachment of this muscle to the tubercle of the os calcis.

1. Baer: Surg. Gynec. and Obst., February, 1906.

Nobl,² of Vienna, had previously noted exostoses on the posterior surface of the os calcis, due, he thought, to inflammation of the sheath of the tendo Achillis, and suggested that they might, perhaps, be of gonorrheal origin, but this was not proved.

L. Jacquet³ and Painer⁴ also described exostoses on the posterior calcaneal surface, but were unable to determine the etiologic factor.

Ely⁵ refers to a condition he names "gonorrheal foot," and states:

It is characterized by extreme sensitiveness, usually in the soles. A history of a comparatively recent infection by the coccus of Neisser can be obtained, and the urethra will be found affected. These feet have something about them that immediately makes one suspicious, but further than the extreme sensitiveness and the fact that the patients walk as if they were treading on eggs, I can not tell exactly what it is. Even the pathology is a matter of doubt, for the condition is not one to justify an operation, and the diagnosis is a mere matter of empiricism.

It is quite possible that he refers to cases of gonorrheal exostosis, but he reports no skiagraphic or pathologic findings.

The paper of Baer,¹ I believe, first definitely describes and proves the gonorrheal origin of the condition he terms "gonorrheal exostosis of the os calcis."

Following the report of six cases by Baer, Jaeger,⁶ in 1908, reported eleven others, and Davidson⁷ adds the eighteenth case. I wish to add to this number the histories of two cases.

This affection is probably not uncommon, but the chief symptom, that of pain under the heel, is usually ascribed to some other condition—flat foot, tuberculosis, osteomyelitis or sarcoma of the bone, neuritis, bursitis, chronic rheumatism, rheumatoid arthritis, Schaffer's foot and the various other conditions associated with painful heel—and the close relation of an existing or previous gonorrhea is overlooked.

PATHOLOGY

Baer¹ believes that the initial process is located in the flexor brevis digitorum muscle and extends down to the os calcis. The chronic inflammatory process produces, first, exostotic growths at the attachment of the muscle to the tubercle of the os calcis and, secondarily, other bony growths may develop on the sides and posterior surface of the calcaneum or in the adjacent tendons. Jaeger states that "pathologically the process is an ossifying periostitis." Gonorrheal arthritis and exostoses between and along the vertebra may be coexistent. Baer demonstrated gonococci by culture in 1 and in sections in 2 of 4 cases examined. Jaeger reports positive findings of gonococci in one case. Cultures taken in Davidson's case proved to be sterile.

SYMPTOMS

1. *Pain*.—This, the chief symptom, is referred to the plantar surface of the os calcis, is very limited and present only when the patient bears weight on the foot or on direct pressure over the exostosis. Both feet are generally simultaneously affected. Usually there is no

2. Nobl: Fersenschmerz der Blennorrhoeerkrankten, Ztschr. f. Heilk., xxiv, 273, quoted by Baer: Surg., Gynec. and Obst., February, 1906.

3. Jacquet: Ann. de dermat. et de syph., 1892, p. 681; quoted by Baer: Surg., Gynec. and Obst., February, 1906.

4. Painer: Tr. Am. Orthop. Assn., xi; quoted by Baer: Surg., Gynec. and Obst., February, 1906.

5. Ely: Rheumatism of the Feet, Med. Rec., Aug. 5, 1905.

6. Jaeger: Am. Jour. Orthop. Surg., January, 1908, v, No. 3.

7. Davidson: Med. Rec., Oct. 3, 1908.

pain on moving the foot, unless secondary osteophytes be present about the attachment of the tendo Achillis or mediotarsal joint. Pain about the ankle, knee or in the calf muscles may occasionally occur, because of strain on muscles or tendons from the unnatural gait of the patient.

2. *Gait*.—The extreme tenderness of the heel causes the patient to throw the body weight forward to the ball of the foot and gives a tiptoeing gait. His steps are slow and careful.

3. *Deformity*.—There is but little noticeable deformity. Periosteal thickening often produces a swelling on either side of the calcaneum. Occasionally very large exostoses may be felt on the bottom of the os calcis.

DIAGNOSIS

The complaint of pain in both heels and admission of an existing gleet or attack of acute urethritis some months previously, generally three to nine months, are suspicious. These, with the presence of the tender spot over the tubercle of the os calcis, absence of acute signs of inflammation and the gait should lead to an x-ray examination. Skiagraphs show a pointed or slightly bulbous bony growth springing from the tubercle of the os calcis and varying in size from "that of a pea to that of a marble." Occasionally there may be multiple exostoses. All the cases recorded have occurred in adult males. The exostoses are commonly bilateral.

TREATMENT

All measures save operative seem of little avail. Baer reports five patients operated on with cure. Jaeger obtained excellent results in six patients operated on. Davidson's patient was fully relieved by operation.

An incision is made along the inner side of the heel parallel to the plantar fascia, exposing the lower border of the os calcis. The tissues are retracted and the exostosis chiseled or curetted away. The wound is closed with silkworm gut without drainage. Baer also used in several cases a plantar incision directly over the exostosis. Jaeger also employed the plantar incision and introduced a cigarette drain for twenty-four hours. The lateral incision is probably the better, as it admits of clearer exposure and the resulting scar is not subjected to pressure as when located on the bottom of the heel. Drainage is unnecessary, as there is but little bleeding and the wounds heal by first intention.

CASE REPORTS

CASE 1.—*Patient*.—J. S., white man, aged 19, was admitted to Gouverneur Hospital,⁸ New York, Sept. 11, 1907. Family history unimportant. Patient had measles and pertussis as a child. He was an electrician and was not subjected to an unusual amount of standing or walking.

Present Illness.—Patient had an attack of acute gonorrhea three months before admission, which was treated for several weeks. Three weeks before admission he noticed slight tenderness in both heels on walking. Tenderness had grown steadily worse and latterly in the evenings he had had some pain in ankle and running up to knee. The heels were never red or swollen and pain was noticed only on standing or walking.

Examination.—Patient was a rather poorly nourished man; general examination otherwise negative except for the presence of enlarged inguinal glands on both sides and for the tenderness under heels. On under surface of both heels there was marked tenderness over a very limited area. No swelling, redness or deformity was to be made out. Patient walked with great pain and threw his weight forward on to ball of

foot, keeping heels free from the floor. Temperature, pulse and respiration were normal. Blood examination was normal; urine, normal except for presence of "clap shreds." Skiagraphs showed presence of exostoses on under surface of both ossa calcanei. Gonococci were determined in pus cells from the urine. The exostoses were, unfortunately, not examined for organisms.

Operation.—Ether. Right heel: Incision on inner side. Os calcis exposed and exostosis ($\frac{1}{2}$ inch long and $\frac{3}{8}$ inch high) removed. Wound closed without drainage with silkworm gut. Left heel: Incision on plantar surface of heel; exostosis, about same size as in right foot, removed. Wound closed with silkworm gut. No drainage.

Postoperative History.—Wounds healed kindly and patient discharged November 28. All symptoms relieved. The pain in ankles and knees of which patient complained was evidently due to muscular strain produced by his abnormal gait in effort to relieve heels of pressure. This pain disappeared entirely after patient was kept in bed.

CASE 2.—*Patient*.—X. man, aged 20, was admitted to Gouverneur Hospital,⁹ New York, April, 1908. Family and past history unimportant.

Present Illness.—Some nine months before admission the patient contracted an acute gonorrheal urethritis. He was treated with urethral injection until the acute symptoms abated, when treatment was discontinued. He noticed a slight mucoid discharge in the mornings for some time after stopping treatment. About four months before admission he felt slight tenderness in heels when he first walked in the morning but this gradually wore off during the day. Lately this tenderness had grown worse and persisted all day, seriously interfering with walking. He had been treated without improvement for flat foot and rheumatism.

Examination.—Patient was a fairly well-nourished young man. Thoracic and abdominal organs were normal. Prostate was slightly enlarged and firmer than normal. Inguinal glands, especially of left side, were enlarged. Urine showed gonorrheal shreds in first glass; second and third glasses clear. On plantar surface of both heels there was marked tenderness on pressure and walking was quite painful. No redness, swelling or deformity was noticed about heel; no pain on movement of foot. Gram-negative diplococci were determined in cells from urine. Skiagraphs showed a pointed bony growth springing from the tubercle of both ossa calcanei.

Patient was treated with hypodermic injections of gonorrheal antitoxin for three weeks but without improvement.

Operation.—May 4, 1908. Ether anesthesia. Right foot: Incision over inner side of right heel exposing exostosis, which was chiseled away. Wound closed with continuous catgut suture. No drainage. Left foot: Plantar incision over tubercle of os calcis. Exostosis, not so large as in right foot, was easily removed with rongeur forceps. Catgut closure and no drainage.

Postoperative History.—Wounds healed by first intention. Patient discharged on twentieth day after operation. Very slight tenderness persists under left foot, probably because of scar.

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HAIR SICKNESS

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I wish to call the attention of those who are interested in the various phases of serotherapy to a disease which affects workmen in hair-cleaning mills. The hair from various animals is received at the mills in bales which are opened and the hair is put into machines which separate the hair from dust and other foreign material, and the workmen necessarily inhale much of this dust which, in part, is the dried secretion of the sudorific glands of the animals from which the hair came.

8. I am indebted to Dr. H. M. Silver, visiting surgeon to the Gouverneur Hospital for permission to publish this case.

9. I desire to thank Dr. Edward L. Kellogg of New York City for permission to report this case.