

with in the same way. The graft is fastened by two catgut sutures on the mesenteric side, including the mesentery and both ends of the graft. The stitches are made parallel to the mesenteric vessels. The grafts become firmly adherent within a few hours, and in the course of one or two days are vascularized by new vessels growing into them from the scarified surface of the bowel. If any internal aids to circular suturing are used they should be composed of absorbable material and employed in such a way as not to produce marginal gangrene, and with a central opening large enough to allow free fecal circulation. I cannot but regard mechanical supports made of metallic substances as dangerous. The objections made to them do not apply with equal force to the decalcified bone tube of Neuber, the sleeve button of the same material, of Sachs and Littlewood, and the bobbins of decalcified bone of Robson. These appliances merit a trial and will undoubtedly be improved upon in the future.

Lateral anastomosis as a surgical procedure has a great future. I still remain partial to the use of decalcified bone plates as a substitute in part for sutures. Abbe has discarded the use of his catgut ring and now advocates long incisions and suturing. If the plates are made with an oval perforation three inches in length the same object is realized in a much shorter time and with a greater degree of safety. I never had any faith in rings as a means of approximation. The plates bring into accurate contact large serous surfaces and serve at the same time as splints for the injured part. They serve the double purpose of sutures and splints. The other appliances of decalcified bone that have been enumerated may answer the same purpose as the anastomosis plates, but with none of them can the pressure to which the included margins of the visceral wounds are subjected be regulated with the same degree of certainty, and none of them approach so near the function of splints. I have no doubt that future experiments will result in the discovery of other and safer appliances that will be vastly superior to anything I have mentioned, and that if they do not abolish, will at least greatly limit the present field of the intestinal suture.

ORIGINAL ARTICLES.

A CASE OF CHRONIC GLANDERS, WITH RECOVERY.

Read before the Section on Surgery and Anatomy at the Forty-fourth Annual Meeting of the American Medical Association.

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ABSTRACT.

This paper begins by showing that the bacillus maleus is the prime etiological factor in glanders;

That glanders is allied to the chronic infectious diseases, and its normal host probably one of the domestic animals;

That the bacillus is an obligate parasite of its host;

That it resembles morphologically the other bacterial parasites that produce chronic infectious diseases in man, especially tuberculosis and leprosy;

That the occurrence of glanders in man is rare, and that it presents itself in two forms: one acute and rapidly fatal, terminating as a rule inside of

two or three months at the farthest; the other chronic, from which the patient may recover after one, two, four or five years of disease;

That the occurrence of glanders is usually due to the association of man with domestic animals, or persons suffering from the disease.

CASE.

The case which I have to present was referred to me in April, 1889, by Dr. Holdsbury, of Granville, La Salle county, Illinois, with the following history: The patient, Charles Mason, was a well-developed young man twenty-two years old. He had always been well and strong and had lived on a farm all his life. He worked on the farm all the time, except when in school, since old enough to be useful. In December, 1889, one of his horses was taken sick, became stiff and lame, had "running from the nose" and loss of breath, and died at the end of a week. The mate to this horse became sick and had several sores, which the patient dressed and took care of during the month of December. Sometime during the middle of December the left finger became sore and was treated by Dr. Holdsbury, who pronounced it a felon. It was very painful, but there was no adenitis or lymphangitis, and no rise of temperature or chill. Before the felon was entirely healed five foci appeared in five different parts of the body—one at the elbow, one at the vertex, and one on the right side of the lower maxilla, one in the right thigh and one in the right calf. Three of these foci were open when I first saw him. The one on the lower maxilla and the one in the calf were still unopened. These foci appeared almost simultaneously about the first of January, 1889, and within three weeks after the beginning of the so-called felon. They each began with a sharp stinging pain, much like a bee sting, with deep swelling and little or no oedema and redness. When I saw the patient first the temperature was 100 and the pulse 92. The history showed that there had been no rise of temperature, and no other symptom of acute sepsis during the three and a half months from the beginning of the explosion, the first week in January, to my first observation on the 12th of April. The patient was then somewhat reduced in weight, but not emaciated. He was walking on crutches; the right leg was flexed on account of the swelling below the soleus. The skin over the focus on the right maxilla was thinning from pressure atrophy, but there was no oedema or redness such as is found about staphylococcus abscesses. The same observation was made on the calf. The open abscesses on the elbow, the vertex and the thigh, presented somewhat the appearance of tubercular abscesses, but with this difference: the abscess wall was covered with a firm, hard, almost shot-like, bright red granulation, and the exuding secretion was sanguinolent. The diagnosis of a suppurative disease was excluded by the absence of oedema and redness, of proximal adenitis and by the persistent absence of chills and rises of temperature. The possibility of tuberculosis was considered and the diagnosis rested between glanders and tubercular infection, with a strong preponderance in favor of glanders, both on account of the atypical appearance of the granulations and the history of the case. The indication seemed to be for immediate and vigorous operative interference.

Having provided myself with the assistance of Dr.

Frank S. Billings, D. V. S., who was well acquainted with glanders in domestic animals, operation was undertaken under the strictest antiseptic precautions—first to secure from the unopened focus in the leg uncontaminated pus for inoculation in guinea pigs for diagnostic purposes, and second, to mechanically remove the infected tissues. After opening the skin with the cautery a small amount of pus was taken up as it welled into the cautery wound and immediately inoculated into two guinea pigs and three rabbits. These animals were isolated and the two guinea pigs developed the typical orchitis, and the two rabbits died between three and four days after the inoculation of glanders septicemia. The *evidement* of the focus was completed through a larger cautery wound which opened the infected area from an inch and a half below the popliteal space the lower third of the tibia. It was impossible to say exactly where the infection lay, but it seemed to be in the fascia separating the bundles of the soleus and gastrocnemius. After *evidement* with the sharp spoon, the cavity was swabbed out with a saturated solution of zinc sulphate. It was then packed with iodoform gauze, wet in a saturated solution of iodid of potassium. The other foci were treated in the same way, with this addition: that those foci connected with the bones, three in number, had the *evidement* or chiseling extended to the removal of the bone sequestrum and the immediately adjoining healthy bone. Five operations were performed during the first anæsthesia.

There was never any rise of temperature and little inconvenience to the patient from these operations. The wounds healed with exceeding slowness and usually required from three to six *evidements*, though the one in the jaw which was operated upon under the most favorable circumstances healed during the week following the first operation.

The patient became so well acquainted with the symptoms of the localization of the infection that he would call my attention to a spot in which he had felt the characteristic sting and subsequent pain. I marked these points with ink and after anæsthetizing the patient, cut down upon them and either removed them as I would a tumor, or cauterized the focus extensively with the actual cautery and treated it by the open method. In this way during two years and a half, the patient was anæsthetized twenty times, and new foci were opened or old ones scraped out. Only one case of adenitis was observed and this was treated by excision. The number of foci was *fourteen*, namely:

1. The primary focus on the left middle finger.
2. The right thigh.
3. The front of the tibia.
4. The right forearm.
5. The right lower maxilla.
6. The vertex.
7. The right groin, an adenitis.
8. The right popliteal space.
9. The right gluteal region.
10. The left gluteal region.
11. The left calf.
12. The right calf.
13. The recurrence in right tibia.
14. The front of the right thigh.

It seems to me that this case is worthy to be reported because the history is good, the diagnosis was confirmed by inoculation experiment, and recov-

ery has followed rational and persistent surgical procedure. An additional interest is to be taken in the case because of its rareness, and because it was difficult at first to say that it was not tubercular explosion.

AN ORIGINAL METHOD OF RESTORING THE ALVEOLAR ARCH IN ANTERIOR CLEFT OF THE HARD PALATE AND OF CORRECTING THE DEFORMITY OF THE ALA NASI IN HARE-LIP.

Read in the Section of Surgery and Anatomy, at the Forty-fourth Annual Meeting of the American Medical Association.

BY JOHN A. WYETH, M.D.

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The operation I desire to submit to your consideration is intended more perfectly to correct the deformity of the lip, and more particularly of the nose, in anterior cleft of the palate and alveolar arch.

It is a common experience that after plastic work on the soft parts in cases of complete hare-lip and cleft palate, which brings the lip into satisfactory position, the *ala nasi* of the affected side still remains misshapen, flat and sunken. The *ala nasi* rests normally upon the nasal margins of the superior maxilla.

If the maxillæ are normal, and the alveolar arch in front complete, each *ala nasi* rests upon a bony surface and foundation on the same plane, and the two are naturally symmetrical. If one is deficient, the nostril of that side sinks down and out of line just as the corner of a house sags when the underpinning is not high enough. The operation of *advancement of the anterior portion of the upper jaw on the short side* is designed to build up the foundation.

In certain cases of anterior cleft the inter-maxillary process is adherent to one side (the long side), and projects in a clumsy fashion usually to the front and upwards. In these cases the old method of bending or forcing this misplaced process over to the short side and holding it in contact until union is secured, completes the arch and gives a suitable foundation for successful plastic work on the nostril and lip.

When, however, the inter-maxillary process is absent or largely deficient we find one *ala nasi* resting upon a normal portion of the alveolar arch on one side, while on the other it recedes from one-half to one-quarter inch, resting upon the imperfect maxilla and alveolar process. In four such cases I have devised and carried out successfully the following procedure:

About one-quarter inch from the edges which are to be brought into apposition, a hole is drilled through the bone and a strong silver wire carried through, ready for being tightened. The edges are now freshened by slicing off the mucous membrane lining the bone with a strong scalpel or scissors. With a strong pair of straight scissors in very young infants, or a bone cutter the alveolar arch and maxilla of the short side is divided about half way of its length and at a right angle to the dental surface. By introducing a very strong cord of silk or wire into this fissure, and making strong traction forward on this, the undivided portion is fractured and the loos-