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THE OPERATIVE TREATMENT OF ERYSIPELAS.[1]

THERE has so comparatively little been said on this side of the ocean about the new operative treatment of erysipelas, and the method is such a good, reliable, and safe one, easily carried out by every general practitioner, that a few minutes may perhaps be granted to me to give a short report of my experience with the same.

As is well known, Volkmann had reported, by his assistant, Kraske, in 1880,[2] a number of cases of severe diffuse septic phlegmon cured by multiple incisions and scarifications. The favorable results achieved with this procedure have been frequently confirmed.

As it seemed probable that this method, if powerful enough to stop a diffuse infectious inflammation of the subcutaneous connective tissue, would act in a similar manner upon an infectious spreading inflammation of the skin, Kraske tried it for the cure of genuine erysipelas. His results were so encouraging that, in 1886, he had the history of three cases published,[3] which proved that an erysipelatous inflammation can also be prevented from spreading by surgical interference. The scarifications and multiple incisions, of one-third of an inch in length (from fifteen to twenty to the square inch) were made both in the skin involved and in the adjoining sound portions. If the erysipelas was very extensive, the scarifica-

[1] Read at Albany, at the meeting of the Medical Society of the State of New York, February 5, 1890.

[2] Centralblatt f. Chirurgie, 1880, No. 17, p. 265.

[3] G. Kühnast: Centralblatt f. Chirurgie, 1886, No. 9, p. 137.

tions were not made in the diseased area itself, but only in the sound portion of the skin adjacent. In both cases the patient was anæsthetized. After the comparatively abundant bleeding had stopped, the skin was squeezed to press out the serum containing the infectious cocci, and at the same time irrigated with a five per cent. solution of carbolic acid. At last it was thoroughly washed with the same lotion, and dressed with moist compresses, soaked in a two and a half per cent. solution of carbolic acid. Dressings were changed once or twice a day. In two of the cases a single operation was sufficient to arrest the disease; in the third the operation was repeated twice before the inflammation was under control.

In 1887 Riedel[1] proposed to make superficial incisions in the border-line of the erysipelatous area only, because it has been shown that here alone the erysipelas cocci accumulate and proliferate, thus extending the inflammation. The incisions should just penetrate the chorion. They were about two inches long and one-sixth of an inch apart, one crossing the other at an angle of about forty-five degrees, the crossing-point being exactly on the border of the inflammation. Thus the whole invaded region was encircled with a net-work of cuts, not unlike a rail-fence (Fig. 1). It represents simply a double zigzag line, the points of which unite. For his dressings Riedel used gauze soaked in a sublimate solution, 1 to 1,000, to be renewed three times a day. This reported series of eleven successful cases shows the equally great value of this simpler modified procedure. Only in two of the eleven cases was it necessary to repeat the operation on account of the further spreading of the disease.

Last year Lauenstein proposed, in a paper read before the Medical Society of Hamburg,[2] to improve the Kraske-Riedel method by locating this fence of incisions entirely in the sound tissue, about one inch away from the border

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[1] Classen: Centralblatt f. Chirurgie, 1887, No. 19, p. 361.
[2] Deutsche Medicinische Wochenschrift, 1889, No. 11.

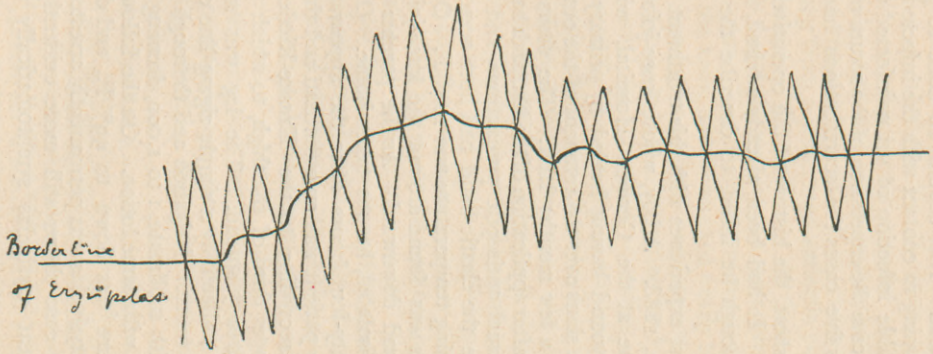

FIG. 1.

of the erysipelas. This should be done to prevent the knife from coming in contact with the infected parts, and avoiding possible infection of yet uninfected tissue. Of course in this case the expression of the serum was omitted. In one of his five cases the scarifications had to be repeated.

This is, in short, the history of the operative treatment of erysipelas. It had been already advised, in 1828, by Dobson,[1] although he failed to describe the procedure in detail.

My own first experience with this treatment dates from December 12, 1888. A boy, whose knee-joint had been excised by me at the German Hospital, with perfect success, the wound having healed by primary union, returned, with a sinus over the remnant of the outer condyle of the femur, a few months later. The sinus and bone were scraped after application of the Esmarch bandage, and with all the usual antiseptic precautions, and the wound dressed before the elastic band had been removed. But the next morning temperature was 104° F. On examination erysipelas was found around the knee-joint, spreading upward and downward. As the parents refused to have the boy isolated, he was taken home. On the next morning, twenty-four hours after the appearance of the erysipelas, the patient was anæsthetized and the scarifications made, according to the Kraske-Riedel method, around the upper third of the thigh, to which region the disease had already spread. The leg was surrounded, just above the malleoli, by a simple zigzag line of incisions instead of the fence. Irrigation and thorough rubbing of the wounds with sublimate, 1 to 1,000, dressing with clean gauze, soaked with same lotion. On the following morning temperature was down to 99° F., and did not rise again. The erysipelas was permanently arrested.

My second case shows still more evidently that we should not treat erysipelas symptomatically any more,

[1] Medico-Chirurgical Transactions, 1828, vol. xiv.

but that we *can* fight it with the knife. On September 16, 1889, I was called by Dr. R. Stein, of this city, to see with him a baby, twenty months old, who, on the morning of the same day had been attacked by a marked erysipelas of the left leg, with all its characteristic symptoms, starting from a perforated varicella pustule. Temperature above 104° F.; restless. As there was no doubt in regard to diagnosis, we met the same evening prepared for the operation. The inflammation meanwhile had spread upward to the knee, and downward nearly to the malleoli. After the usual preparations had been made the child was anæsthetized, and the bloody ring made in an oblique direction around the knee-joint, according to Lauenstein's modification of the Kraske-Riedel method, in the adjoining sound skin, about an inch and a half removed from the border of the erysipelatous area. As in the first case, the leg was surrounded by a zigzag line of incisions. The next day the erysipelas was found to have proceeded up to the bloody barrier. The whole invaded spot was swollen, red, and hot, covered with blisters, and, as it seemed, painful on pressure. But the erysipelas had not jumped over the fence. Below, it had nearly reached the scarification line. At the knee, where it evidently had spread very quickly, it had entered and filled the sharp angles opening downward of the fence. There the skin was dark-red. But the adjoining rhomboids of skin, outlined by the incisions, retained the normal white color. The picture was very interesting and demonstrative (Fig. 2).[1] Within thirty-six hours the temperature was normal, and the disease permanently arrested. But two hours later the ther-

[1] Of course the erysipelas will not always stop at the first zigzag line, viz., the one nearest to it, in such a characteristic manner. Frequently it may enter the rhomboids. But to spread still farther, it must pass the second zigzag line, which has meanwhile been thoroughly disinfected with the antiseptic. In doing so its strength is again reduced, and is then so weak that it is usually harmless. It is therefore advisable not to content one's self with making a simple zigzag line, but it is always better to add the second one, which will complete the fence.

mometer again registered 105° F. The cause was found to be an erysipelas of the other leg, where, also, a few open sores had given entrance to the cocci, although they had been carefully dressed all the time. The baby was again put under chloroform and the same operation performed as on the other side. I only put the fence about one-half inch nearer to the border of the infected portion, in order to leave a smaller area of invasion to the threatening foe. Again the wounds were thoroughly rubbed

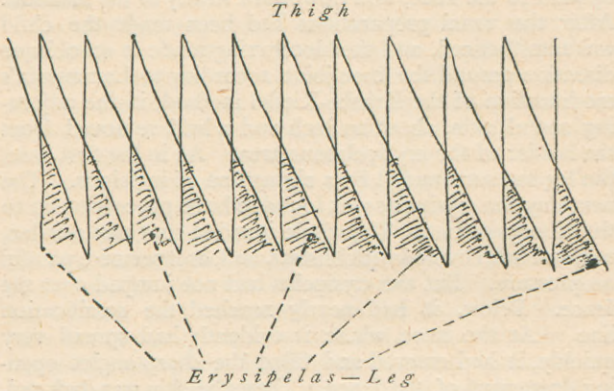

FIG. 2.

with sublimate solution, 1 to 1,000, and dressed with gauze soaked in the same fluid. The next morning the little patient seemed to feel much better, but was still feverish; temperature, 103° F. The erysipelas had passed the barrier on the anterior aspect of the thigh, and also advanced down upon the foot. The general symptoms being very slight, we observed the child for the next twenty-four hours. But then seeing the red-border line slowly advancing toward the groin, I narcotized the little patient for the third time on the 20th of September, and then scarified the thigh only, anteriorly, according to Riedel, carefully

following the superior contour of the redness. The next day the child's temperature was normal, and never rose again. It was cured.

I should like to mention a third very interesting case, although not belonging to my own experience, which occurred at the German Hospital last summer. A man was carried to the hospital in a delirious condition with the diagnosis of typhoid. A careful examination showed an extensive erysipelatous inflammation of the scalp spreading down the forehead. The house-surgeon, Dr. F. Jorek, immediately resorted to scarifications according to the Kraske-Riedel method. The scalp was shaved in its anterior portion, and the ring made under ether, only between the eyebrows it was made somewhat less careful, as these had not been shaved. After-treatment the same as above described. The next morning the delirium had entirely abated, the temperature was down to 101° F., the pulse nearly normal. The cause of the still slight fever was discovered to be the advance of the erysipelas to the right cheek. It had slipped between the eyebrows, where, as I have mentioned, the scarifications had been done less carefully. But the seriousness of the inflammation was broken. On the next day the erysipelas had stopped spreading, and a short time later the patient was all right.

These cases speak for themselves. Others, as Madelung,[1] have had the same satisfactory results. There is no doubt in my mind that this operative treatment of erysipelas is the best and most reliable we know for this disease up to date. It nearly invariably insures success, and is able to arrest the disease permanently at once. It therefore ought to be tried by every physician in a case of erysipelas of the trunk or extremities. In the face the danger of permanent scars that might be left after the scarifications would lead us to limit the method to the most serious cases. But this danger evidently need not

[1] Centralblatt f. Chirurgie, 1888, p. 588.

interfere with the application of the method to the hairy scalp.

A semi-surgical method, recently advocated by Woelfler,[1] deserves perhaps a passing mention in this connection. He recommends compression of the border region by adhesive plaster-strips. I have no personal experience with this method; but Woelfler claims to have had splendid results. If the same good results should be confirmed by others also in severer cases of erysipelas, and if it should be shown that this method can be applied in any region of the body with an equal success, it of course deserves trial.

To avoid the necessity for narcosis in the scarification method, in this small but painful operation, A. Seibert, of New York City, who has recently published an article on the surgical treatment of erysipelas in children,[2] has invented a new instrument, called a scarificator,[3] of the shape of a comb, with which he scratches a large surface with one stroke. He tried it successfully in four cases. Whether the instrument will work satisfactorily in a severe wound-erysipelas, remains yet to be proved. L. Weber proposed a similar instrument for this purpose, in the MEDICAL RECORD, 1889, vol. 35, p. 569. I myself am more in favor of using the knife, which is found in every pocket-case, and of putting the patient under the influence of an anæsthetic. It will be better for the patient and for the doctor.

In conclusion I might say this:

1. It seems to be the most rational procedure, in operating for erysipelas according to the Kraske-Riedel method, to make the scarifications near the border, but in sound tissue, as Lauenstein has proposed it.

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[1] Zur mechanischen Behandlung des Erysipels, Centralblatt f. Chirurgie, 1888, p. 718, and Wiener klin. Wochenschrift, 1889, Nos. 23–25.

[2] New York Medical Jonrnal, 1889, p. 430.

[3] Med. Monatsschrift, 1889, p. 664.

This dictum is justified by the history of about forty cases, which have so far been published.

2. The barrier is most easily formed, if perpendicular and oblique lines are made alternately.

3. The incisions should not be made too deep, just sufficient to draw blood, as in the rules for vaccination. It is also advisable to narcotize the patient.

4. If after the operation the inflammation continues, nevertheless, its character will be found invariably to have become less serious, from which we may infer that only a relatively small number of infectious cocci have succeeded in crossing the barrier. In strong patients, being in good condition, the operation need not then be repeated. But if the patient is feeble and unfit to cope with a continuance of the disease, new scarifications should be made.

5. The after-treatment must be carried out with moist compresses, soaked in sublimate, 1 to 1,000, to be changed two to three times a day. But unless the change can be made by the doctor, or a competent nurse, the dressings should be left in place and kept moist by frequent irrigation with the same lotion.