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ON THE
USE OF THE NITRATE OF SILVER
IN THE
CURE OF ERYSIPELAS,

By JOHN HIGGINBOTTOM, F.R.C.S.E. Nottingham.

(Read before the Provincial Medical and Surgical Association, at the Anniversary Meeting, at Derby, Wednesday, August 4th, 1847.)

I HAVE found that if the nitrate of silver be applied *early*, it subdues local inflammation and irritation, if we employ at the same time, the most efficient means for regulating the digestive organs.

At an early period of my practice, in slight cases of erysipelas, I used constitutional remedies alone, hoping that the inflammation would have been arrested; but having been so often disappointed, I now use both local and constitutional remedies simultaneously, and especially the nitrate of silver. Even in mild cases of erysipelas, in which I did not apply the nitrate of silver, I found the disease very long in duration, and I observed that the patients had sometimes numerous small abscesses requiring the use of the lancet, which might have been prevented altogether by the early application of the nitrate of silver.

The objections I formerly entertained to the very early application of the nitrate of silver, were the pain and inconvenience attending the discolouration of the part on which it is applied, which remains for a week or more, but these objections are trifling compared with the continued severity of the disease, if permitted to run its usual course, particularly on the head, in which there is also great danger of inflammation of the membranes of the brain and of serous effusion. I have found that when the inflammation has been subdued by an early use of the nitrate of silver, the constitutional symptoms were immediately relieved; the constitutional disturbance is directly aggravated by the least increase of local inflammation, and in a few hours, after a decided application of the nitrate of silver, the inflammation is arrested and gradually subdued, and with it the constitutional symptoms cease.

Even in idiopathic erysipelas, there is no period of the disease when I would not apply the nitrate of silver. I have never in any cases seen metastasis, or any other bad effect from the use of this important remedy.

When it is necessary to apply the nitrate of silver over an extensive surface as in erysipelas, I have for some years used the concentrated solution in the manner proposed by Mr. John Gooch, Surgeon, R.N., in a paper published in the *Lancet* of September 15th, 1832, entitled "Practical remarks on Erysipelas as it appeared on board His Majesty's ship, *Prince Regent*." The strength of the solution is not given in this paper; I prescribe it in the following manner:—

R. Argenti Nitratis..... scr. iv.
Acidi Nitrici gtt. vj.
Aquæ Distillatæ dr. iv.

In erysipelas of the face when it is spreading on the forehead, or at all on the scalp, the head should be shaved as early as possible, in order that we may trace the extent of the inflammation on the scalp, which often can only be detected by pain, or by an œdema being felt on pressure with the finger. The effected part should be well washed with soap and water to remove any oily substance from the skin, and afterwards with pure water, to wash away any particle of soap remaining. The concentrated solution may be then applied several times on the inflamed part and for two or three inches beyond the inflamed margin on the healthy skin. It requires to be applied very freely all over the scalp, where it scarcely or never produces vesication.

In about twelve hours it will be seen if the solution has been well applied. If any inflamed spot be unaffected by it, it must be immediately re-applied to it. Sometimes even after the most decided application of the nitrate of silver the inflammation may spread, but it is then generally much less severe, and it is eventually checked by the repeated application of this remedy. I have in some cases of traumatic erysipelas, found the inflammation to spread more severely and more rapidly than in the idiopathic, but by the free repeated application of the nitrate of silver, it has at length been subdued.

The following cases are selected to illustrate this mode of treatment:—

CASE I.

On the 6th of August, 1844, I visited Miss A., 20 years of age, of very delicate constitution, and of a strumous diathesis. She had been exposed to the rain, and had neglected to change her damp clothing. She experienced the common symptoms attending a cold, accompanied by a slight erysipelatous inflammation of the right side of the cheek and nose. The constitutional symptoms were so slight, and the pulse so little accelerated, that I wished to avoid the application of the nitrate of silver, thinking the inflammation might be subdued by other remedies. I directed thirty grains of ipecacuanha as an emetic, and in three hours after its operation two pills, containing three grains of chloride of mercury, and eight grains of the compound extract of colocynth, followed by a purgative of salts and senna, repeated every three hours until it operated freely.

7th. Early the following morning, although the emetic and purgative had operated satisfactorily, she was labouring under a severe attack of fever; the pulse was 140, and the erysipelas had spread considerably on her face and forehead, and slightly on her scalp. I opened a vein in the arm, and bled her in the semi-recumbent position to the amount of twelve ounces, when she became faint. Her head being shaved, the concentrated solution of the nitrate of silver was applied upon and beyond the whole of the inflamed surface, and also around the ears, to prevent them becoming inflamed. I applied it very freely over one half of the scalp, thinking this might be sufficient, as only a small portion of the forehead was effected. I prescribed two grains of the chloride of mercury, with two of antimonial powder, every six hours.

There appeared no increase of the inflammation on the 8th, and the pulse, 120; the bowels had been well moved.

9th. She had a restless feverish night, attended with slight delirium, the pulse being 120. There was no increase of erysipelas on

the face, but it was spreading on the remaining part of the scalp. I applied the solution of the nitrate of silver over the remaining part of the scalp. Neither of the ears were in the least affected. The solution of the nitrate of silver had apparently formed a barrier, over which the erysipelas did not spread.

On the 10th. the patient was in every respect improving.

From this time Miss A. recovered without interruption.

CASE II,

I visited Miss B., aged 30 years, on the evening of the 18th of December, 1843. She had been indisposed several weeks. There were considerable fever, a quick pulse, and pain of the head, and she had a patch of erysipelas on the upper part of the nose, and a little across the lower part of the forehead. I prescribed an emetic of ipecacuanha, followed by a dose of chloride of mercury and compound extract of colocynth, and the sulphate of magnesia in infusion of senna.

On the morning of the 19th, the erysipelas had spread all over the face, and as high as the forehead, close to the scalp, and there was no abatement of the constitutional symptoms. I bled her whilst sitting up in bed until she fainted, and directed the head to be shaved, and I then applied the solution of the nitrate of silver all over the face, and one half of the scalp. In the evening I applied the solution of the nitrate of silver over the remaining part of the scalp; having found that one ear had become inflamed, I applied the solution both upon it and around the other ear affected.

20th. The fever was considerably abated; the pulse was 100. From this day the patient was convalescent.

CASE III.

I visited Miss C., aged 20 years, on the 14th of September, 1844.

She had a sense of coldness and pain of the limbs the day before; she had then a slight degree of erysipelas on the left side of the nose, cheek, and upper lip. I directed an emetic and pill, with the compound colocynth powder and chloride of mercury, followed by an active dose of infusion of senna and sulphate of magnesia.

In the evening I found the erysipelas increased and spreading towards the ear; the lower eyelid was considerably swollen, but the erysipelas had not reached the forehead; pulse 100; no pain of the head. I applied the strong solution of the nitrate of silver all over the inflamed surface and the surrounding healthy skin for several inches, particularly round the ear. A grain and a half of chloride of mercury, with two grains of antimonial powder, was given every six hours, and a saline effervescing medicine every three hours.

16th. The application had been effectual, and there was no increase of the erysipelas; the pulse was 80.

CASE IV.

Mr. J. S., aged 30 years, had slight febrile symptoms on the 11th of December, 1843, which arose from exposure to cold. He had taken aperients and saline medicines. Two days afterwards there was

a patch of erysipelatous inflammation on the right side of the face, without any considerable increase of fever. The nitrate of silver was well applied on the inflamed part, and on the surrounding skin. There was no further extension of erysipelas.

It will be observed in the two last cases, when the nitrate of silver was promptly applied, before the erysipelas had produced severe constitutional symptoms, that the progress of the disease was instantly arrested, and that the patients speedily recovered. in the case of Miss B ———, although the erysipelas at first was suffered to proceed, the application of the nitrate of silver to the whole scalp prevented any cerebral affection, and the patient was convalescent in a short time. In the first case related, there were restlessness and delirium fifteen hours after the application of the nitrate of silver, but it was observed that the scalp where the nitrate of silver had not been applied was inflamed and on the decided application of the nitrate of silver on the whole of the scalp, the delirium ceased. From these cases as well as from my experience of many years, I conclude that the speedy application of the nitrate of silver will arrest the progress of erysipelas, and prevent cerebral mischief. It is also of great practical importance to subdue erysipelatous inflammation in the commencement, for I have observed when the attacks have been severe, that the patients afterwards become more subject to a recurrence of the disease.

The great obstacle to the general and free use of the nitrate of silver, even at the present day, appears to arise from the impression on the minds of many surgeons that it is a caustic— a destructive agent. If they could be divested of that idea, and use it as freely as they would a common blister of cantharides, their fears would soon subside, from repeatedly observing the safety of the application, and also its beneficial effects. In my own practice I have always considered it a safer remedy than cantharides, as it may be applied freely over a surface, even where very active inflammation exists, or where there is an extensive surface denuded of its cuticle. This remedy has also the advantage of not affecting the bladder, or producing strangury.

The nitrate of silver is not a caustic in any sense of the word. It subdues inflammation, and induces resolution and the healing process. It preserves, and does not destroy, the part to which it is applied. If we compare a caustic, as the hydrate of potassa, with the nitrate of silver, we find that the hydrate of potassa destroys and induces a slough and the ulcerative process; but if we touch a part with the nitrate of silver, the eschar remains for a time, and then falls of, leaving the subsequent parts healed.

If an ulcerated surface secreting pus be touched by the nitrate of silver, the succeeding discharge is immediately converted into lymph: it is the property of the hydrate of potassa, on the contrary, to induce not only ulceration but suppuration. In short, the peculiar properties of the nitrate of silver have long been kept unknown to us by the designation of lunar caustic, affording the most striking instance of the influence of a term, or of a classification, upon the human mind. The nitrate of silver and the hydrate of potassa, (as indeed all caustics,) are as the poles to each other, the first preserves, the second destroys; the first induces cicatrization, the second ulceration.

Nottingham, July 27th, 1847.



