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SOME ACCOUNT
OF THE
SCARLET FEVER,

LATELY EPIDEMIC IN LIVERPOOL.

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J. F. Macfarlane Esq
from the writer

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SOME ACCOUNT OF THE SCARLET FEVER, LATELY EPIDEMIC IN LIVERPOOL.

THE careful history of any local affection which may complicate the course of a familiar disease, has always been regarded as a useful mode of contributing to the progress of practical medicine. This remark will apply with peculiar propriety, if the affection allow of illustration by anatomy, and if it present itself so frequently in conjunction with a disease, prevailing extensively at any one time and place, as to constitute an essential feature of the epidemic. Very few diseases appear to have engrossed more of the attention of medical men, or to have received ampler illustration at their hands, during the long time which has now elapsed since it was first accurately described, than the one which heads this communication. Indeed, when we direct a glance at the literature of scarlet fever, we are astonished by its copiousness, as well as by the eminence of those who have written upon the subject. From this circumstance we might suppose, that every form and complication of the disease had been thoroughly studied and announced; yet, when practical men turn to the records of observation, for a solution of the difficulties by which all are liable to be occasionally confronted, they are too often disappointed by finding, that, in common with most other diseases, many important features of this are unnoticed, or if mentioned, are set forth in terms too meagre and equivocal to relieve their perplexities.

It is with the anxious desire of adding something to our knowledge of one important, though vaguely described complication of scarlet fever, that the writer has ventured upon this communication.

By those who have seen much of this disease, it has doubtless been remarked, that in addition to the inflammation by which the internal fauces are more or less attacked, in most cases of scarlet fever, the exterior of the neck is occasionally the seat of swellings, varying in size, in figure, and consistence. It was not to be supposed that a circumstance of so prominent a character as this could escape the notice of the distinguished observers who have treated of the disease. Nevertheless, these swellings do not appear to have ever attracted more than a most superficial attention, while very opposite opinions have been entertained of their real nature and seat. Thus, Drs Sims and Willan

place them in the parotid and submaxillary glands; Dr Armstrong speaks of them as painful indurations of the glands of the neck, without specifying whether the salivary or the lymphatic order of these structures; while Dr Tweedie refers them to a tumefaction of the cellular tissue and absorbents. These opposite and conflicting statements show that precise information is wanting upon the subject—a circumstance which cannot surprise us, since we do not anywhere find anatomical descriptions of the affection to which they relate.

The extensive prevalence of scarlet fever in this place, from the spring to the end of 1840, and the extraordinary frequency with which the cases were complicated with swellings of the neck, afforded me an opportunity of obtaining some interesting information respecting the nature and the progress of these tumors. In endeavouring to communicate this, it may be desirable, first, to introduce an account of some fatal cases, together with the appearances which were observed upon dissection; secondly, to relate some cases illustrating the various modes of recovery, especially with reference to the progress and termination of the cervical tumors; and to conclude with a few miscellaneous observations, naturally suggesting themselves upon a review of the subject.

The morbid appearances which presented themselves after death enable me, as well from the order in which the affected tissues appeared to be implicated, as from the character of the pathological changes which they had undergone, to consider them under the following heads—a division which is, moreover, prescribed by the affection itself, in its progress from simple to more complex stages:—first, where the soft parts of the neck, which were concerned in the swelling, were found infiltrated with bloody serum; secondly, where, in addition to this, there was puriform infiltration of the cellular tissue and muscular fibres; thirdly, where, in conjunction with these changes, pus was diffused through the substance of the absorbent glands; and lastly, where the tumefied parts sloughed out, and left the muscles and blood-vessels seated behind them, completely exposed to view. The case which follows will illustrate the appearances mentioned under the first head, where the structures involved in the swelling were loaded with bloody serum, but exhibited no other change.

CASE I.—A girl, aged 4, had an attack of scarlet fever. On the third day of the disease a tumor appeared below the angle of the jaw, on the left side; this extended downwards and inwards, causing tumefaction of the whole of that side of the neck. The swelling had a firm and tense consistence. On the right side the fulness was extremely slight. Severe pain and sense of suffocation accompanied this affection of the neck; and the child expired, worn out by suffering, on the ninth day of the disease.

Dissection.—Upon reflecting the integuments covering the sides and fore part of the neck, a marked difference was observed in the state of the parts lying on either side of the median line. To the right of this, nothing unusual was observed; on the left, the adipose and cellular tissues were much charged with bloody serum; their consistence, however, was unaltered, and no appearance of purulent or fibrinous effusion was noticed. The salivary and the lymphatic glands were free from induration or enlargement, and upon being cut into they displayed no sign of disease internally. The left tonsil was gone, and the surface which it had occupied was in a state of gangrenous softening. The right tonsil was still present, but this body, as well as the space which it filled, exhibited the same appearances as the part just mentioned. There had been no extension of ulceration or sloughing to the adjacent parts of the fauces. The larynx and trachea were sound.

In this case there was a satisfactory correspondence between the state of the neck during life, and the changes which were observed afterwards. To the right of the median line the swelling had been barely perceptible, and in that region no evidence existed of inflammatory action having been present; the parts were altogether free from exudation. On the left of the same boundary, however, where the tumefaction was so well marked before death, dissection proved it to be dependent upon an accumulation of bloody serosity in the fat, cellular membrane, and texture of the soft parts generally. In connection with the appearances observed here, it is worthy of remark, that seven days elapsed between the first development of external swelling and the fatal event.

The next case will exhibit the changes set down under the second head, where, besides being loaded by the effusion noticed in the dissection just related, the affected structures were infiltrated by a puriform fluid.

CASE II.—A boy, aged 4, was observed to be unwell on the 4th October; on the following day a scarlet eruption appeared on the skin, and he complained of sore throat. Leeches were applied to his neck on the 6th; on the 7th the febrile action was considerable, and the eruption general. Upon inspecting the fauces, both tonsils were found ulcerated; the ulcers had an ash-coloured surface, and were as large as a split pea. A hard swelling beneath the angle of the lower jaw, on the left side, was now noticed. The nitrate of silver was applied to the tonsils, and leeches, followed by a poultice, to the external swelling. Tepid sponging, and laxatives of calomel and rhubarb, were ordered. On the 8th the caustic was again used, and one grain of calomel, to be taken every two hours, was prescribed. The swelling had increased in size and in hardness on the 9th, and there was much

dysphagia. On the 10th the swelling occupied the greater part of the left side of the neck. The eruption was now fading, but the heat of skin and quickness of the pulse continued. The calomel was still exhibited, and the throat was directed to be frequently syringed with a diluted solution of chlorinated soda. The swelling of the neck was softer, and it had ceased to extend on the 12th, but the child was in other respects much worse. There was great emaciation,—the countenance was pale and sunk,—the pulse small and rapid,—the mouth and teeth clammy and coated with sordes,—restlessness, but no delirium. The calomel was diminished, and mild nourishment was given. On the 13th, a dark spot, the size of a shilling, occupied the centre of the cervical swelling, which was now smaller and much softer; and at this spot, the tumor felt as if the integuments were separated from the subjacent tissues. On inspection of the throat, the ulcers were found to have increased much in depth. There was, at this time, slight diarrhoea. Chalk mixture was ordered, together with a small quantity of red wine. The purging was relieved, but the child's strength progressively declined from this day, and he expired on the 16th. *Dissection.*—The skin, where covering the cervical tumor, presented an eschar of considerable extent. When the integuments covering the neck were dissected back, the condition of the parts on the right side was seen to be natural. On the left side, the fat and cellular membrane were bedewed with serum, and an ash-coloured puriform fluid. The sterno-mastoid muscle was of a pale salmon colour; its fibres were remarkably lacerable, and they were infiltrated with the same effusions. The external and internal jugular veins of this side were examined with much care, but they exhibited nothing unusual. Both the tonsils had been destroyed. The membrane covering the pillars of the fauces was in a gangrenous state. The uvula, velum, larynx, and trachea were healthy. The salivary and absorbent glands exhibited no deviation from their natural state.

Death, in this case, occurred at a later period than in the one by which it is preceded; and the morbid changes which were observed, denoted a more advanced state of disorganization in the tissues which had been the seat of inflammatory action. This was especially conspicuous in the mastoid muscle, by the change of color, and general softening of substance which it displayed. The boy expired on the thirteenth day of the disease; and on the tenth from that on which the external tumor became first manifest. In both the cases hitherto related, the lymphatic and the salivary glands were found to have entirely escaped any participation in the diseased actions, which left such unequivocal traces of their effects in other textures. In the child, whose his-

tory next follows, the former order of these glands will be found to have been extensively involved in the changes which were observed upon dissection; and this will serve to illustrate what was stated under the third head.

CASE III.—A girl, aged 4, was attacked with the usual symptoms of scarlet fever. Considerable swelling of the neck accompanied the disease from the first; it commenced by an enlargement, on both sides, of the absorbent gland, which lies a little above the cornu of the os hyoides. Death took place on the twelfth day. *Dissection.*—The parts subjacent to the integuments of the neck were found moistened by puriform fluid. The gland situated above the cornu of the hyoid bone, on the left side, was softened and broken down by purulent infiltration of its substance. The corresponding gland, on the opposite side, was apparently healthy, but a gland, belonging to the deeper chain, and lying immediately behind this, was filled with pus of a dark green color; one or two other absorbent glands in the neck were also distended by pus; the salivary glands were healthy. Both tonsils were destroyed, and the cavities which lodge them were enlarged, and sloughy on the surface. The apex of the uvula was red and cedematous. The posterior part of this structure, as well as that of the velum, and the pharynx generally, were coated with a dark-coloured viscid secretion. The larynx and trachea were healthy. The internal jugular veins exhibited nothing unusual.

Here a longer time elapsed between the first appearance of tumefaction in the neck and the death of the child, than in either of the instances which precede it. The fatal event did not take place until the twelfth day; and the disease, and the local affection by which it was attended, occurred almost simultaneously. Upon dissection, the appearances were found to be more complex than in the former cases; a class of structures, the lymphatic glands, being enlarged and extensively disorganised by the presence in their substance of effusions, which, in the previous cases, were limited to the cellular membrane and muscles respectively.

The subjoined case, in which the parts concerned in the tumefaction of the cervical region, were thrown off by the sloughing process, exhibits a singular circumstance in the pathological history of these swellings, and deserves to be mentioned as one of the modes of their fatal termination.

CASE IV.—A boy, between three and four years of age, was affected with scarlet fever on the 1st of January. There shortly appeared under the horizontal ramus of the lower jaw, on each side of the neck, a swelling, which was hard and well defined; this was extremely painful on pressure. The skin moved freely over the tumors. That on the right side was the larger. The patient la-

bored under high constitutional disturbance and cerebral excitement. At first, after the treatment recommended, the boy improved in his general symptoms,—the tumor on the left side became smaller; but that on the right increased, presenting a diffused appearance, and extending from the angle of the lower jaw, forwards to the median line, where it terminated abruptly, and downwards, to within about two inches of the clavicle. At its upper part, the swelling involved the lower portion of the cheek, but its boundaries were not well marked, except anteriorly. The affected parts became very firm to the touch, were excessively tender, and the skin covering them assumed a vivid red tint. On the 6th of January, a spot of a yellowish-grey colour appeared at the centre of the tumor; this rapidly increased in size, until it acquired considerable dimensions, when a line of separation formed, and the whole of the dead skin and cellular membrane were thrown off, exposing the muscles and blood vessels at the upper region of the neck, as completely as when they are displayed by the scalpel. For several days after this the case went on well. The chasm in the neck began to granulate, and the child's appetite and strength improved rapidly; very soon, however, whenever the boy made any effort, as in crying or resisting the dressing of the wound, a general oozing of blood took place from its surface. At each return of the bleeding it became more profuse, and the patient finally expired from exhaustion, about five days after the first occurrence of hemorrhage. It seems unnecessary to relate any other dissections, as this would only add to the length of the present paper, without, as far as I am aware, throwing further light upon the morbid anatomy of the affection which they are designed to illustrate. In none of the cases which have been here detailed, nor in any which I have had an opportunity of observing, has enlargement, induration, or other departure from the natural condition of the salivary glands, contributed to the production of the cervical swellings described. This circumstance would seem to justify a belief, that Sims and Willan were in error, when they ascribed similar tumors to enlargement of those bodies. But as these swellings of the neck very frequently occupy the precise situation of the salivary glands, particularly of those which lie beneath the base of the lower jaw, the incorrectness of their opinion, unsubstantiated as it appears to have been, by any appeal to anatomical evidence, is easily accounted for. The parts especially affected, as has been shewn, are the cellular membrane, the muscular fibres, and the absorbent glands. These structures do not appear, from the cases which have been narrated, to be simultaneously attacked by the inflammatory process which is set up, but to become involved, in the inverse ratio of their vital endowments, and complexity of structure. Thus, in the first

patient, where death took place in seven days after the earliest development of the swelling of the neck, the cellular substance alone was the seat of the disease. In the second patient, in whom death occurred ten days after the external tumor appeared, the muscles were found affected, in conjunction with that tissue. And, in the third case, where life was prolonged to the twelfth day from the appearance of the tumor, the lymphatic glands were extensively concerned in the changes which presented themselves. The local inflammation, as well from the mode of its extension, as from the nature of the products to which it gave rise, shewed more of the diffuse than of the phlegmonous character. This is certainly one of its most important peculiarities, in a practical point of view, as it is that to which much of the danger that accompanies it may be fairly attributed. In most of the cases in which the absorbent glands became implicated in the swelling of the neck, those which are situated immediately above the hyoid bone were earliest and most severely affected. The superficial chain of glands suffered oftener and more extensively than those which lie deeper in the neck, but the latter frequently participated in the disorganising changes which took place.

It may now be well to relate briefly, a few examples of recovery from scarlet fever, when attended by the cervical tumors which have been engaging our attention, and which came under my observation during the prevalence of the same epidemic that furnished the cases already brought forward. After perusing the notes of numerous cases of recovery, made at the time when they presented themselves to my notice, I find that it will be sufficient to mention three of these, as they will exhibit the termination of the external swellings of the neck by resolution and by suppuration,—for it was by one or other of these processes that the tumors terminated, in all the instances of recovery which I had occasion to witness.

In the case that follows, the local affection, although severe, underwent complete resolution, and that in the absence of any energetic measures, either of a topical or constitutional description.

CASE V.—A girl, aged 6, had scarlet fever on the 24th November. On the 27th, the rash had faded. The day after this there was still much fever, and the fauces continued red and swollen. The tongue, which appeared furred at the sides, and florid in the centre, was dry. There was very considerable tumefaction of the neck, occupying the space between the chin and the os hyoides in front, and extending back as far as the mastoid process. Beneath the angle of the lower jaw, on both sides, a gland, much harder than natural, and enlarged to the size of a filbert, might be distinctly felt. Pressure on this caused much uneasiness. Be-

tween the symphysis of the jaw and the os hyoides, the integuments had a tense, brawn-like consistence. The countenance was haggard. Tepid aspersion, a poultice to the external fauces, and a moderate dose of calomel and rhubarb, were ordered. 29th. The medicine had operated sufficiently. The night had been restless. The state of the tongue, of the throat, and of the neck had undergone no change from the preceding day. The pulse was frequent, and the skin hot. The same measures were directed to be continued. 30th. The patient's bowels were freely opened. The swelling of the neck was softer, especially that portion of it which occupied the region beneath the chin. The poultice only was ordered.

December 4th. The child had made great progress since the last report. There was now no constitutional disturbance. The general tumefaction of the neck was subsiding rapidly, and this was accompanied by a resolution of the glandular enlargements below the angles of the jaw, which were no longer to be felt. December 13th. The state of the neck was natural, all swelling having completely disappeared.

In the next patient also, the cervical swelling terminated by resolution; but, although more active measures were resorted to with the view of promoting this, than were employed in the case which precedes it, the tumor did not subside with nearly the same rapidity.

CASE VI.—A girl, aged 4, experienced an attack of scarlet fever. The general symptoms were not severe; but, during their continuance, a hard swelling appeared beneath the left angle of the lower jaw. This tumor increased to such an extent, as to raise the neck nearly to a level with the base of the maxilla. Leeches, followed by a sinapism, were first applied. As, nevertheless, the swelling became larger, leeches were a second time ordered, and the skin was directed to be kept moist by a strong ammoniacal liniment. This last application caused extensive vesication; a purulent discharge then took place from the denuded surface, and continued for nearly three weeks, during which time the cervical tumor gradually but entirely disappeared. While the resolution of the swelling was going on, the treatment consisted in regulating the bowels, and supporting the strength by quinine and nourishing diet.

The following case, which will be the last brought forward, exhibits the termination of the tumor of the neck by suppuration.

CASE VII.—A girl, aged 3, became affected with scarlet fever. When the eruption began to decline, a swelling of the left side of the neck, near the angle of the jaw, was perceived. This increased in size, and was attended by febrile symptoms. On the 3d of September, the tumor seemed inclined to suppurate, but fluctuation could not be felt distinctly. There was no ulceration of the

throat, and deglutition was easy. Leeches, followed by a poultice, were applied to the swelling, and the bowels were opened by calomel and rhubarb. As there was no change in the child's state on the following day, a grain of calomel was given, at first every three hours, and afterwards, as it was well borne, every hour. This was continued for two days, when, suppuration in the tumor having become evident, it was punctured, and discharged about half an ounce of healthy-looking pus. The application of poultices was continued, and the mercury was given thrice only in the twenty-four hours. The swelling of the neck now proceeded favourably; but, as the child was becoming pale and emaciated, the calomel was entirely withdrawn, and nutritious food, with small quantities of wine and porter, was given, together with the potassio-tartrate of iron. From this date, the patient's general health improved steadily, but the tumor required to be punctured a second time, when a small quantity of watery pus escaped. On the 22d of October, the cervical swelling was scarcely perceptible, and the child's health had been long re-established.

The epidemic, of whose leading peculiarity I have attempted this imperfect notice, has been one of a most formidable character, from its long duration, the large number of those who have suffered from it, and the great mortality by which it has been attended. Between the months of April and December inclusive, (1840), upwards of 300 cases of scarlet fever were entered upon the books of the Northern Dispensary alone; and I am informed that the districts of the town which receive assistance from the other medical charities, were also most severely visited by the disease, which did not appear to be restricted to any particular locality. Of the 300 cases mentioned, the smallest number, 33, occurred in April; the largest, 55, in September.

In the earlier periods of the epidemic, a great majority of the cases were complicated with external tumefaction of the neck; and, in accordance with what is so commonly observed of diseases when prevailing epidemically, its severity was then the greatest. Subsequently, although the occurrence of the swellings was equally frequent, the disease became more tractable; and, finally, towards the month of December, although a large number of children continued to be affected with scarlet fever, the disease became comparatively mild, and so few patients experienced the local complication adverted to, that it might, from that time, be said no longer to present any thing novel or peculiar in its type.

During the prevalence of the disease in that form, which has been described, I did not see one individual suffer from it who had reached the age of puberty; and those who were most frequently affected were children under seven years of age. The cervical swelling occurred at all periods of the complaint; and, in many instances, first showed itself after the eruption had disappeared.

It was usually greater on one side than on the other, and was not unfrequently confined to one side only. The inflammation and ulceration at the fauces were often of formidable extent; but the tumors again and again appeared in cases which were not accompanied by more sore throat than is constantly observed in scarlet fevers, where no such affections of the neck take place. In a very large proportion of those who did well, the swellings ended by resolution,—for although among the three cases of recovery which have been related here, one terminated by suppuration, this must by no means be regarded as any indication of the relative frequency with which these modes of termination were observed. Suppuration was rare; but, as far as my observation extended, the patients in whom it occurred got well. Where gangrene was set up in the tumefied parts, I did not see recovery; but the occurrence of gangrene was extremely rare. In most of the fatal cases, death took place while the cervical swelling was still in a state not apparently incompatible with its subsiding by resolution had life been prolonged.

During this epidemic, the cutaneous eruption was very commonly remarked to be more partial, faint, and fugitive, than is generally the case in scarlet fever. Although, from the severity of the disease, the patients were often reduced to a very cachectic state, and convalescence advanced but slowly, dropsical swellings seemed to occur less commonly than is usually observed after epidemics of a much milder character.

As regards treatment, I have nothing very satisfactory or conclusive to offer. In those cases which terminated favourably, recovery took place under the use of very opposite means, as when antiphlogistic, mercurial, and stimulating remedies were employed. Although, in many instances, the patients did well, where energetic measures, as free and repeated leeching and severe purging, were recommended, this practice, for the most part, seemed to be injurious, by lowering the strength, without exerting any obvious effect upon the progress or condition of the cervical tumors.

Upon the whole, a combination of tepid aspersion, warm poultices to the neck, and gentle mercurial laxatives, seemed useful; particularly by moderating the febrile action, under which the vital powers rapidly gave way.

The cautious but steady use of wine and other means of support should not, I think, be withheld too long, under this form of disease, as these were well borne, even by children of a very tender age, as soon as ever the violence of the febrile symptoms was broken.

Liverpool, 20th March 1841.

