

THE GELATINOUS OEDEMA OF MUMPS

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It smacks of smugness to hold that there is little, if anything, to be added to our understanding of mumps. It has been suggested¹ that detailed observations on mumps are worth making because of its interesting nature and because much information is still needed about the disease.

In Britain in 1961 less common complications of mumps, such as gastro-enteritis followed by a sialoadenitis, appeared. Symptoms included vomiting, abdominal pain and diarrhoea, and the possibility of pancreatitis was not overlooked. The question was asked: can gastro-enteritis be the only manifestation of mumps where the salivary glands have escaped but the pancreas has not? It has also been suggested that in an infant the salivary swelling of mumps can be replaced by a lymphadenitis of the neck—a quite remarkable claim. It appears also that the organ affected by the mumps virus, *Rabula inflans*, may vary from one outbreak to the next.

DIAGNOSTIC DIFFICULTIES

No clinician who has had to diagnose infections in infancy and childhood will deny the difficulty, even the embarrassment, which he has experienced in making the correct diagnosis of an infectious disease such as pertussis, scarlet fever, or a second attack of measles. Where mumps is concerned, the text-book description is readily recognized, but when the less commonly involved submaxillary and/or sublingual glands are affected without involvement of the parotid, the condition is often confused with an adenitis associated with some other local infection in or about the pharynx.

Hempelmann² has said that mumps which is limited to the submaxillary or sublingual glands may be diagnosed with certainty only by a history of exposure. The extension of the swelling to the parotid, or typical complications such as an orchitis in the adult, are confirmatory.

Diagnostic Sign

In 1949 Heller³ described a sign which he had good reason to regard as pathognomonic of mumps. Since I have found it of considerable help when I have been in doubt about the diagnosis of mumps, and because so little is still known about its diagnostic value, I am reporting

a recent illustrative series in one family group occurring in my practice.

In the majority of cases of mumps, and especially those with submaxillary and sublingual gland involvement, the tissues overlying the region of adenitis are moderately oedematous and the oedema can be differentiated from the swelling that accompanies a pyogenic infection by a simple test. If the margin of the oedematous area is gently tweaked, the swollen tissues quiver like a jelly. Heller stated that 'when this gelatinous type of swelling is present mumps may be diagnosed with certainty'.

He based this dogmatic statement on astute observations he made during an epidemic of mumps in 1948 from which he compiled a table showing the sign to be present in 87.3% of cases with only the parotid gland involved, 6.4% with the submaxillary only, and 6.4% with both parotid and submaxillary glands involved. The gelatinous oedema was present in 48% of single parotid, in 58% of double parotid and in 100% of submaxillary gland involvement. It is only fair to mention that these percentages were based on a total of 63 cases. Although a similar kind of oedema not caused by mumps may, as Heller said, be found infrequently in other soft tissues of the body, infections or affections that might be confused with mumps do not show it.

Bradford⁴ showed an interesting comparative photograph of mumps in a 6-week-old baby, and secondary inflamed lymph nodes in the neck of a 2-month-old infant. Here the difficulty of diagnosis is manifest, with the marked unlikelihood of a 2-month-old baby having mumps, yet with mumps occurring in a 6-week-old baby.

CASE REPORTS

A mother called me to see her 5½-year-old daughter who had quickly developed a swelling near the angle of the jaw on the right side. She asked whether it could be mumps. When I saw the child she had no increase of temperature, there was no parotid swelling, and there was a tender 'tonsillar' lymph node on that side which was palpable through the diffuse soft swelling, which also overlay the submaxillary salivary gland. The throat showed a relatively enlarged right tonsil with a low-grade superficial inflammatory exudate. There was no known contact with mumps although the mother had heard of its presence somewhere in the neighbourhood.

That evening the mother recorded the child's temperature as being 99°F., and informed me that her daughter felt perfectly well, but that the swelling had spread towards the chin. The next day the temperature was normal and the child seemed generally well, but the swelling was then not only submandibular but submental as well. There was no swelling of the parotid gland, lymph nodes or submaxillary gland on the left side.

The normal facies of this girl were clear-cut so that she complained of her 'double chin' and made a most apt remark to her mother that her chin 'wobbles like a jelly when I run', and that it wobbled very much when she jumped. There was no doubt about the jelly-like shiver in the swelling when she performed these acts. On seeing this I recalled Heller's observation³ and made a definite diagnosis of a mumps infection of the right submaxillary and sublingual glands. No other glands became clinically involved and the whole swelling subsided completely in 4 days without any complications.

Three weeks later the mother, aged 32 years, who knew that she had not contracted clinical mumps before, developed swellings of her submaxillary glands and sublingual glands. She showed no trace of parotid swelling, her temperature at no time rose above 99°F., and in every other way she felt quite well. However, there was an added interest in that the swelling in her case extended from the region of the angles of the jaw to below the chin and downwards over the front of the neck; it gave a strong impression that it entered the superior inlet of the thorax. The jelly-wobble was obvious all over the swelling. This was a confirmation of her daughter's mumps infection. There were no complications.

While the mother's swelling was still to be seen, her younger daughter, aged 3 years and 10 months, began to show identical swellings of the submaxillary glands and sublingual glands, but these did not extend further than the glandular regions. There was no sign of parotid swelling and the temperature, again, was scarcely raised. The gelatinous oedema with its wobble or shiver could be easily elicited. The infection passed off without further incident.

The father stated that he had never had mumps ('and won't get 'em!'), and did not show any signs or complain of any symptoms which might be associated with a mumps infection. The third child, a baby boy of 10 months, was watched with much interest. The mother had shown herself to have been non-immune at the time of his birth, so the possibility that he might have had conferred upon him some degree of passive immunity enduring for 10 months was not entertained. However, he remained free from infection.

Of 5 sibs in another family who had been in very close contact with these familial cases of mumps, one had had mumps in early childhood. The other 4 rather young sibs had not had the infection. Less than 4 weeks after the subsidence of the outbreak in the first family, 1 of the 4 suspected non-immune children, who was aged 3 years and 10 months, appeared off colour, ran an evening temperature of 100-101°F., complained of some abdominal discomfort and slight headache, urinated unexpectedly during the day and night, and was much inclined to curl up drowsily on his bed. Because he was a known mumps contact swellings were looked for. His mother thought that she could detect a difference in his left parotid region. She is an alert woman where her children are concerned, but nevertheless the observation could be argued. The child's stools became slightly loose and a little more frequent over 2 or 3 days; then rapid and complete recovery followed.

One week later the elder brother, aged 9 years, showed some malaise and a rise of temperature, and 2 days later a left parotid swelling of moderate size developed which was soon followed by a swelling of the other parotid. There was no submaxillary or sublingual gland swelling, no headache and no abdominal discomfort. Heller's sign was present although not necessary for the diagnosis. The other two sibs did not contract the disease, their ages being 2 years and 11 months, and 10 weeks, respectively.

COMMENT

This report of a young girl contracting mumps outside her home from some unknown contact and then transmitting the infection to other members of her family and so to other contacts is a very ordinary tale, but in addition it brings out very clearly how unusual and diverse in its clinical manifestations the infection by the mumps virus can be. These cases were so unlike the typical accepted clinical picture of mumps, that the diagnosis of the first case could be justified clinically only by the positive Heller's sign. Without this sign in the beginning the diagnosis could have been established only by the familial sequence of cases, and yet if, as can be logically assumed, it was the same strain of mumps virus which was responsible for all the cases in the family group, it is curious how differently in some respects it affected the patients and how it passed by contacts who could not be considered immune to mumps. Why was it that in some it appeared to leave the parotid gland alone, that in one child the diagnosis was made by induction, and that in only one of the 5 infected children could mumps be said to be obvious?

A point that is worth making here is that skin-testing material to help in the determination of a contact's susceptibility to the mumps infection is not available to us here. It had been intended to assess by skin-testing whether the fathers of the affected children were susceptible or not. This could have allayed their possible fears about testicular involvement, and might have demonstrated subclinical mumps which can pass unnoticed and yet can confer an adequate immunity. The testing of the close contacts who appear to have escaped should also have been done from this point of view. If this test could be more widely applied it might help to answer some questions about mumps, e.g. can diabetes originate from an unrevealed mumps infection which strikes the pancreas severely and produces only a simple clinical complaint of abdominal pain and slight bowel disturbance of short duration, treatable with an anodyne? As I have shown, there are several other questions about mumps which still remain unanswered.

SUMMARY

The importance of the Heller sign, or the detection of gelatinous oedema in a case of suspect mumps, is emphasized to help the clinician when he is in doubt. The sign is described and a series of cases of mumps presenting in unusual ways in one family group is discussed with some comment on the wider implications of this disease.

REFERENCES

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