

RUBELLA AND POLYARTHRITIS

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Possibly the worst epidemic of rubella to have occurred in this part of the country, appears to have ended and, because there is no official recognition of the fact, it is as well to have some record of this event. Epidemics of measles (rubeola) may be heavy but are characteristically not so prolonged as epidemics of rubella which are usually mild. This recent epidemic of rubella, however, which began about May-June of 1963 and lasted for about 9 months, was remarkable for its great infectivity, its wide prevalence, the extensive range of the age-groups affected (in my experience from 6 weeks to 54 years) and the apparent, even probable, re-infection of persons who believed themselves to have acquired the illness previously.

One rather interesting and important feature of this epidemic of rubella was the fairly frequent appearance of polyarthritis as a complication or, perhaps, additional sign of the infection. This has been noticed before and, on consulting that great clinician Sir William Osler I found, in the 9th edition of his *Textbook of Medicine*, arthritis mentioned as being a *rare* complication of rubella. Other and subsequent textbooks of medicine have been untraditional enough to exclude Osler's observation from their texts.

Geiger¹ in 1918 reported an epidemic of German measles in which there were cases with serious complications, among which were several instances of serious joint involvement accompanying the exanthem. He also noticed recurrent attacks of rubella in the same epidemic. In 1940 there was a great epidemic of rubella in England, as some of us may recall, and in the military establishments this illness was rife. Suffern² brought an interesting single case of polyarthritis, complicating rubella in a man of more than 60 years, to the attention of readers of *The Lancet* in that year, and Hope-Simpson,³ in a letter to the *British Medical Journal* in the same year, told of 25 cases of polyarthritis among 72 patients with rubella coming under his observation; his youngest was 8 years old and his oldest 82 years. Wesselhoeft,⁴ who gave an excellent detailed review of epidemic rubella, a result of Gregg's astute discovery,⁵ in Australia, of the important relationship of congenital cataract with rubella contracted by the pregnant woman, stated that a mild form of polyarthritis may follow a few days after the eruption has disappeared; and he quotes Lindberg⁶ as having observed this development in 6 cases of whom 3 were children.

In 1930 Olive Potter,⁷ in a memorandum pointing out how severe the illness rubella can be, had presented with other cases, 1 case with a very severe degree of polyarthritis appearing on the third day of the eruption. Bennett and Copeman,⁸ again in 1940, found themselves with some concern trying to differentiate the polyarthritis of rubella from that of acute rheumatic fever, but found them indistinguishable! In 1946 Swan and Tosterin,⁹ in 1953 London,¹⁰ in 1954 Lewis,¹¹ and later Ritchken,¹² Johnson and Hall,¹³ and Lee *et. al.*¹⁴ contributed cases of polyarthritis occurring in rubella, one or the other making special reference to its frequency or only passing mention. Nevertheless, Slater¹⁵ as recently as 1962, in a discussion of rubella complicated by arthritis, was able to say that the occurrence of polyarthritis with rubella was not well-recognized in the USA.

No physician would doubt that the polyarthritis associated with rubella is not a manifestation of a diathesis for rheumatoid arthritis, but this association of the polyarthritis with the exanthem of rubella brings forward the work of Kantor and Tanner¹⁶ who, using the modern latex aid to diagnosis, could show no connection between the polyarthritis of rubella and that of rheumatoid arthritis, after following-up cases for from 2 to 5 years. Their investigations were undertaken to deny or establish the idea that rheumatoid arthritis could be of viral origin, which is certain of the polyarthritis of rubella. Had they been able to prove that classic rheumatoid arthritis followed the polyarthritis of rubella they would have gone far towards settling the doubt about the possible viral aetiology or the infective origin of rheumatoid arthritis.

SOME EPIDEMIOLOGICAL DATA

In Australia the epidemics of rubella during the war-years were severe. So, also, was the epidemic recorded in the UK in 1940. There were marked prodromal symptoms and when the exanthem erupted there resulted considerable malaise, lassitude, headache, vomiting, and a general aching, and arthritis often complicated the picture. In Sydney, Australia, the average stay in hospital for patients with rubella was lengthened from 4 to 8 days. Reports indicated that this change in the characteristics of the illness was not limited to Australia, but a point made was the absence of any obvious relationship between the severity of the disease in the pregnant woman and the degree of congenital defects which the affected newborn baby suffered.

Rubella is, usually, a communicable disease of childhood and early adult life and it has been, and still is regarded as one of the less important infectious diseases. Epidemics, although they tend to persist longer, occur with much less regularity than epidemics of measles and the larger epidemics appear at intervals of 10-20 years in different geographical regions. It is common for them to begin in late winter or early spring. The sickness rarely develops in children under 6 months of age but congenital rubella has been described and it has also been observed during the first weeks of life when the mother has not been immune. It is agreed generally that its communicability is much lower than that of measles but this statement could be refuted on good evidence.

During this last epidemic I observed 3 families comprising 17 non-immune members, who resulted in 13 cases of rubella. The literature on this subject suggests that the frequency of polyarthritis occurring with rubella recognizable in adults is not greater than 30%, but the only reference that I can find to polyarthritis associated with rubella in children is that of Lindberg.⁶

Signs and Symptoms

The arthritis almost always occurs in adults only, and more frequently in females. It may present several days before the rash, several days after the appearance of the rash, or even after the rash has disappeared. The joint involvement may remain for as short a time as 3 days or continue for as long as 3 weeks. It is symmetrical. It has a predilection for joints in the following order; proximal interphalangeal joints of the hand, metacarpo-phalangeal joints, the wrists, ankles, elbows, knees, forefeet, neck, and shoulders. Morning stiffness is often present.

In one of my cases the wrists were especially painful and tender over the ulnar styloid processes, and in the same case the backs of the hands were sore to the touch and swelling of the finger joints prevented the complete closing of the hands. When the hands gripped objects it seemed to the patient that the skin of her hands was not in direct contact with the objects, as though she were wearing gloves. Redness very frequently covers the area of peri-articular swelling. 2 mothers in my small series were sisters, and between them there were

7 young offspring. The mothers developed intense rashes before the onset of the striking polyarthritis yet all 7 children who subsequently went down with rubella showed no sign of a complicating arthritis. Some patients complain of numbness in the extremities and others of burning sensations, but although generalized muscle-pains most marked in the shoulder girdle and gluteal and thigh-muscles are a common complaint, nodules have never been seen nor any lesions of tendon or tendon-sheath.

Some severe cases of polyarthritis have been afebrile, or have shown only a slight rise of temperature or a secondary rise of temperature when the arthritis put in an appearance. It has been asserted that rheumatologists have found themselves diagnosing rubella arthritis retrospectively because of the paradox of an apparent typical case of rheumatoid arthritis losing all its symptomatology within a few days of its appearance.

DISCUSSION

My series of 4 cases of polyarthritis occurred among 13 cases of rubella in 4 families, 2 of which were closely related—approximately 31%. The older the patient the worse he or she felt the illness. Young children showed the more usual clinical form of rubella but the more senior members affected in these families complained of residual malaise, for as long as 3 weeks in one instance. Polyarthritis affected 3 females and 1 male in this particular family grouping.

In the heavy epidemics of rubella in Australia which started the enquiry into the potential evil influence of rubella upon the unborn child, a complicating arthritis had been evident, and one does get the impression that the virulence of the infection can and does vary considerably and that at times of extensive epidemicity the symptomatology is correspondingly aggravated by an augmentation of this virulence. 2 material points that need consideration in any attempt to understand the pathogenesis of the composite symptomatology of rubella are the observations that, whereas the disease shows no sexual bias in itself, the polyarthritis manifests predominantly in females and rarely in children.

A great deal has been written about rubella in the pregnant woman, the unhappy sequelae of which opened up a vast field for further speculation and research into the aetiology of congenital defects of all kinds and all degrees, with the resulting awareness of the great importance of the prevention of rubella in the pregnant condition. Until Gregg⁵ detected the evil potential of rubella, the ailment had come to be regarded as trivial, and it is still so regarded unless the patient is a pregnant woman in her first trimester. The risk of damage to the foetus during the first 12 weeks of pregnancy has been differently assessed in different parts of the world; in the UK it is considered that 30% of foetuses may be affected, whereas in Australia the figure has been put as high as 80%. We do not know with certainty, however, how liable the developing foetus

is to be affected anatomically to some lesser degree by rubella contracted during pregnancy after the first 12 weeks, but some evidence is accruing that developmental defects, e.g. of hearing, may show up in late infancy. There is a probability that the seriousness of an epidemic of rubella for pregnant women could be estimated by close attention to the detailed symptomatology, and in this respect the emergence of polyarthritis during an epidemic might serve as an indication.

I should like to propose at this point that all physicians who may have any interest in the problems which attach to rubella, should make a prospective analytical approach to every case of rubella under their care and, especially where pregnant women are concerned, all information so obtained should be collated for critical evaluation. The spur for this kind of clinical research can come only at times like the present, when a large epidemic readily presents all the variations of the symptomatology. No faculty is better placed for such an investigation than that of the College of General Practitioners. It would be a pity, indeed, if the opportunity now knocking at its door were to go unheeded, but time is running short. An effort of this kind might well bring to light facts as yet unthought of. This last epidemic of rubella, which is still dragging its slow feet along, should provide all the data that could be wished for.

SUMMARY

1. A series of 4 cases of polyarthritis occurring among 13 cases of rubella in 4 families is discussed.
2. Clinical details of polyarthritis complicating rubella as recorded in the literature and from the author's experience are reviewed.
3. The prevalence of polyarthritis during an epidemic is considered as a possible guide to the virulence of the organism.
4. The author speculates on the possibility of other than the well-known ill-effects on the foetus of a mother contracting rubella, occurring during violent epidemics, and advocates the correlation and assessment of the symptomatology.

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