CASE REPORT

GUMMATOUS MYOCARDITIS

BY

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Gumma of the heart was first reported in 1845 by Ricord. The process may be diffuse or localized, and occurs in both congenital and acquired syphilis. Diffuse gummatous myocarditis is rare, and Symmers (1916) could find records of only 4 cases of this type in 4880 autopsies over a period of 10 years at Bellevue Hospital, New York. Sohval (1935) found records of only 7 cases of diffuse gummatous myocarditis without localized gummata reported between 1845 and 1935. It would appear that the most frequent site for gumma of the heart is in the myocardium of the left ventricle and particularly at the base of the interventricular septum, where it interferes with the conduction system.

Reifenstein (1936) reported a case of acute gummatous myocarditis simulating myocardial infarction, and this patient also developed a cutaneous rash seven weeks prior to death: two similar cases were quoted from the records of the Massachusetts General Hospital. Cassio *et al.* (1937) reported a case of ventricular tachycardia caused by a sclero-gummatous lesion of the ventricular septum which had produced a septal infarct. A further case of gumma of the ventricular septum, this time associated with ventricular fibrillation as well as tachycardia, was reported by Coehlo and d'Oliveira (1939).

Von Haam and Ogden (1938) published three cases, one of isolated gummatous pericarditis, a second of multiple localized gummata of the myocardium, and a third of diffuse myocarditis and endocarditis. A further three cases were reported by Spain and Johannsen (1942) in all of which electrocardiographic changes had been recorded during life. In the first, the gumma impinged on both tricuspid and pulmonary valves, producing functional impairment; in the second, there was a gumma of the posterior leaf of the mitral valve producing stenosis; and in the third, there was massive gummatous involvement of the right ventricular myocardium and also gummatous pulmonary arteritis.

O'Daley (1943) in a series of autopsies found that localized gumma of the myocardium was three times as common as diffuse gummatous myocarditis. More recently Massias (1947) reported a case of a myocardial gumma involving the left ventricle and Mullins *et al.* (1948) reported a gumma of the aortic ring and left ventricle. The latest reports were from India, where Kothare (1949) found three cases of gumma of the heart.

Case Report

The patient, a salesman at Smithfield Meat Market, aged 58, first attended in April, 1957. He had been married 35 years. He complained of a sore on his penis, present for the past week, and also a slight urethral discharge. His most recent sex contact was with a prostitute ten days previous to his attendance. He gave a history of treated gonorrhoea in 1919 while in the Army, and in 1953 he had attended the hospital with an eczematous dermatitis of a right finger.

On examination there were two small indurated ulcers adjacent on the underside of the prepuce and in the coronal sulcus on the dorsal aspect of the penis. In addition, there was a shallow abrasion on the right side of the scrotum with surrounding erythema, thought to be due to the liberal use of dettol. He had bilateral superficial inguinal adenopathy. The urethra was dry at the time. General examination showed leukoplakia of the tongue and buccal mucosa. No abnormal signs were detected in the cardiovascular system or central nervous system.

Dark ground examination of scrapings from the penile lesions were negative for the *Treponema pallidum* on three successive occasions. The W.R. was positive and the Price precipitation reaction (P.P.R.) positive

FIG. 1.—View of right ventricle opened anteriorly alongside the interventricular septum, showing partially organized mural thrombus on the posterior wall extending onto the septum (A). The necrotic tissue in the endocardium, infiltrating subendocardial muscle, is shown on the cut anterior surface at (B) and (C) on either side of the base of the anterior papillary muscle.

at a dilution of 1 in 256 and later 1 in 512. He was found also to have a trichomonal urethritis. A biopsy of the penile lesion failed to help in the clinical diagnosis. A lumbar puncture revealed normal cerebrospinal fluid.

A preliminary diagnosis of gumma of the penis was made and bismuth treatment was started. After his third injection, the penile lesion was noticed to be getting smaller. Towards the end of his course of 10 bismuth injections he began to develop a petechial rash on his legs and shoulders, felt generally unwell, and had a raised temperature, and within a week the rash had developed into a generalized dermatitis. A blood test showed a positive P.P.R. up to dilution 1/128 and he was then given a 10-day course of penicillin. In the middle of this course he complained of a substernal ache but a full examination of his respiratory and cardiovascular systems revealed no abnormality. A week after finishing his penicillin course, he had a bad flare-up of his dermatitis and was admitted to hospital. Chest X-ray, as before, showed no evidence of a lung lesion and the heart size was within normal limits. A week later his skin was no better and there were signs of early cardiac failure. He was transferred to another hospital three weeks later and was noted to have severe generalized exfoliative and exudative dermatitis, cardiac failure, and a temperature of 104°. A chest X-ray showed for the first time enlargement of the heart but no evidence of a pericardial effusion. He deteriorated during the night and at 4 a.m. died suddenly while being lifted in bed. It subsequently came to light that an electrocardiogram made elsewhere four months before his death had been normal.

A coroner's *post mortem* revealed congested and oedematous lungs, with pus and mucus in the bronchial tree. The pericardial sac contained about 120 ml. of a clear serous fluid. Both ventricles were greatly hypertrophied. The outer wall of the left ventricle contained a large, yellowish necrotic area up to 1 cm. thick spreading outwards from the endocardium and extending into the wall of the right ventricle, which also contained a partially organized blood clot. The spleen was enlarged to three times the normal size and showed the remains of one or two infarcts. There was no significant abnormality in any other viscera. Death was thought to be due to failure of the heart muscle precipitated by an acute staphylococcal pneumonia.

FIG. 2.—View of heart showing interior of both ventricles, the left being opened on its sternocostal surface alongside the septum. The extent of the lesions throughout both right and left ventricles is shown (X, Y, and Z). The translucent layer of fibrous tissue (y) is shown beneath the necrotic material (Y). The interior of the left ventricle appears roughened in its lower part (L), due to necrotic material in the endocardium invading the myocardium (M). The ventricular septum has been cut across and shows the extension of the necrotic tissue into it at V.

A more detailed examination of the heart showed a zone of translucent fibrous tissue immediately beneath the layer of necrotic material. The fibrous tissue extended deeply in between the bundles of the myocardium in places. Many of the chordæ tendineæ of both mitral and tricuspid valves were buried in the endocardial deposit, but otherwise they and the valves appeared normal. The aorta and its valves showed a moderate degree of atheroma.

Microscopical examination showed chronic inflammation, œdema, and early fibrosis, affecting mainly the endocardium but in places extending deeply into the interstitial connective tissue of the myocardium. The muscle itself showed patches of degeneration in relation to the most intense areas of interstitial inflammation but was elsewhere within normal limits. The report concluded: "The appearances are those of severe extensive endocardial and myocardial inflammation, so widespread that it cannot be attributed to coronary occlusion but compatible with its being a resolving gummatous process."

Discussion

Sohval (1935) pointed out that clinical recognition of this condition is rare and this report supports his observation. The features of this case are mainly the occurrence of two late lesions, only one of which was diagnosed during life, the onset of an eczematous rash following anti-syphilitic therapy, and the cardiac failure which only appeared a matter of two weeks or so before death. The severity

of the skin disease may have somewhat obscured the final issue, but the fact remains that no clinical signs were detected in the cardiovascular system until quite late, and X-rays and an electrocardiogram were normal four months before his death. Unfortunately, the cardiogram was not repeated during his final illness.

There was little doubt that the penile lesion was a gumma as is borne out by the negative dark ground findings, the high positive titre of the Price precipitation reaction and the therapeutic response to bismuth. This lesion together with the leukoplakia was a manifestation of syphilis in its late (tertiary) stage. The disease had obviously been contracted several years previously and its earlier stages ignored or not noticed. There was some discussion regarding the true nature of the cardiac lesion, but in the absence of any evidence of gross disease of the coronary vessels, no explanation other than that it was gummatous could account for the widespread distribution of the chronic inflammatory and necrotic tissue in both endocardium and myocardium. In addition the clinical diagnosis fits in with the post-mortem diagnosis of gumma of the heart and illustrates the contemporary nature of the syphilitic disease processes in different parts of the body.

Summary and Conclusion

A case of gummatous endocarditis and myocarditis is presented, the lesion being undiagnosed during life. The rarity of this condition and its clinical recognition are discussed in a brief review of the reported cases. Death occurred suddenly during the phase of resolution following anti-syphilitic therapy, and was presumably due to cardiac failure, precipitated by a superimposed lung infection.

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