

Reiter's disease: an historical review of a soldiers' disease

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SUMMARY: Major conflicts in history have yielded an equal number of medical casualties as those injured in battle, and no more common a problem exists in the insanitary conditions of war as dysentery. The complication of arthritis following dysentery has been documented since ancient times, but it is not until the 16th Century that these cases appear in any numbers, and then it is predominantly in military personnel. "Reiter's Disease" is currently understood to mean an asymmetrical, predominantly lower-limb polyarthritides developing after urethritis (usually non-gonococcal) or dysentery; conjunctivitis is not always a constant feature. This is the commonest inflammatory polyarthropathy of young men and both the epidemic (dysenteric) and sporadic (venereal) forms are historically prevalent in soldiers – a not surprising fact considering the squalor of war and the unrestrained behaviour of the Private soldier. This paper traces the history of Reiter's disease and highlights its affinity for military populations.

Introduction

In 1916 Hans Conrad Reiter was 25 and serving with the First Hungarian Army on the Balkan front. On 14th October he was presented at the reserve hospital with a young Prussian Cavalry Lieutenant who had developed urethritis, arthritis and conjunctivitis following a bout of bloody diarrhoea. This single case was published(1), and despite his wrongly attributing it to a spirochaete — he called it "Spirochaetosis arthritica" (perhaps flushed with success from isolating the causative organism of Weil's disease in 1914)(2) — this collection of symptoms has come to be known as "Reiter's Disease".

At the same time Fiessinger and Leroy reported four cases of urethritis, conjunctivitis and arthritis of the peripheral and spinal joints following an outbreak of bacillary dysentery in French troops on the Somme(3,4). Cases were drawn from all Arms and Corps, including thirty regiments of infantry, along a twenty five kilometre front. To the French this is still the "Fiessinger-Leroy syndrome".

History

Arthritis is however as old as man — a fact borne out by paleopathological evidence of destructive joint disease(5), but the first written association of urethritis and arthritis may be attributed to the Father of Medicine and ancient chronicler, Hippocrates of Cos (460–377 BC); within the "Corpus Hippocraticum" he notes that young men do not develop gout until they are sexually active, perhaps identifying an association between a sexually transmissible agent and arthritis(6).

Some six centuries later, Caelius Aurelianus (noted for his description of coronary thrombosis and for his translation of the works of probably the first psychiatrist,



Hans Conrad Reiter (1881–1969)

Taken from "Das Reichsgesundheitsamt 1933–39"
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Soranus of Ephesus)(7,8), detailed a case of arthritis following dysentery which he termed “Rheumatismus intestinalis cum ulcere”(9), although like the records of other ancient writers this was an isolated account.

A further sporadic case can be found in “De incerto, fallaci urinarum iudicio” – observations on a collection of patients with genitourinary disease by Pieter van Forest (alias Petrus Forestus). A university professor and dubbed “The Dutch Hippocrates”, he described a patient with knee arthritis and urethritis in 1575.

The first collection of documented “Reiter’s” sufferers appears in a military context in 1664 in the published notes of Pierre Martinière, Campaign Doctor to Friedrich III, who noted the association of urethritis and arthritis while researching the “maladie vénérienne” on an expedition to Denmark(10).

The Genoese explorer, Christopher Columbus (1451–1505), has been blamed by medical historians for importing syphilis into the Old World, although this fact is certainly disputed. It has been suggested that part of his lengthy illness during the second voyage to the Caribbean (1493–96) could be a result of a reactive arthritis(11,12) – he had both arthritis and painful, red eyes. This is interesting when it is considered that the first apparent Northern European cases occur after Columbus’ time: it is tempting to suggest that if the spirochaete could have been imported, then so could an agent responsible for Reiter’s disease.

By the middle of the 17th Century, dysentery appeared regularly in medical writings and along with it the recognised complication of arthritis – this is particularly true of Sydenham, Morton and Willis’ description of the great dysentery epidemic of 1668–72. Military writers accurately describe outbreaks of dysentery in the Army(13) and the English fleet off Minorca(14), but not all authors recognised a connection with arthritis, urethritis or conjunctivitis.

There is considerable information from the naval and army surgeons stationed in the Caribbean who studied and treated outbreaks of dysentery among negro slaves, the British garrison and the fleet. In the aftermath of a great hurricane that swept through the Jamaican fleet in 1804, James Trotter made frequent references to “dysuria dysenterica” in the ensuing dysentery epidemic(15).

A few years later in England in 1818, Sir Benjamin Collins Brodie (an Assistant Surgeon at St. George’s Hospital) became aware of a disease “. . . which as far as I know has not been described by any pathological or surgical writer”. This was certainly the clearest, if not the first, description to date of the triad later ascribed to Reiter; he detailed five cases of recurrent large joint arthritis(16) associated with urethritis and conjunctivitis, and included in his account a soldier in the Regiment of Life Guards forced to leave the Army as a result of a relapsing arthritis in his right knee.

Dysentery has always been an adjunct and sequel to war. The war-pestilence of Athens during the

Peloponnesian War is mirrored in records of major conflicts from the 17th Century. The Crimean War (1854–56) is notorious for the appalling hardships endured by the troops and dysentery was rife, ranking with typhus and typhoid as major causes of mortality; it has been estimated that 9,500 were invalided from this war and 1,200 were due to “rheumatic disorders”(17). It is likely that a large proportion of these were secondary to a reactive arthritis, as this is undoubtedly one of the commonest inflammatory arthropathies of young men.

Figures for admissions to the Regimental Hospitals in the Peninsula War forty years before also show a strong correlation between the incidence of dysentery (23,200 cases between December 1811 and June 1814) and rheumatism (4,900 cases over the same period).

Little attention appears to have been paid to this relatively common sequel to dysentery in the soldier until Philip Manson-Bahr in 1920 collated reports from troops in India, Fiji and during the Egyptian and Palestine campaigns(18). Estimates of the incidence of reactive arthritis in these military populations ranged from 0 to 10%. He is quoted as saying “. . . it was bacillary dysentery and not the Turk that drove us out of Gallipoli”, but unfortunately this is not corroborated with numbers of complications.

Contemporary Evolution

Hans Reiter continued his interest in the syndrome and retracted the spirochaetal theory a year later through his influential appointments in the Nazi government (as President of the Health Department in Berlin and Professor of Hygiene at the University) he worked to apply better hygiene in the field(19).

With the Second World War came renewed reports of Reiter’s disease in epidemic proportions, closely related to outbreaks of dysentery. The first of these was in field troops in Poland in 1940(20). Later, across the Russian front with Finland in 1944, 344 cases were evacuated through the 56th War Hospital in Nokia(21). Some of these were mild and returned to their units fit for duty, others required prolonged rehabilitation and remained confined to a hospital for disabled servicemen until after the War. Ilmar Paronen agreed that “Most cases [of Reiter’s disease] have appeared in wartime, when conditions have been particularly favourable for the spread of dysentery, but the opportunities for scientific study are also more limited than in times of peace”.

More recently, nine cases developed after a *Shigella* epidemic aboard an American Naval vessel in June 1962 – this followed an anniversary picnic meal prepared by the ship’s cooks, two of whom had contracted dysentery ashore(22).

Epilogue

It is clear that in war Reiter’s disease may reach epidemic proportions in circumstances of overcrowding and squalor, where dysentery can readily spread. Although venereal disease is also common in war (2021 by

1944, 4,000 British servicemen were treated for venereal disease in one month(23)) it probably causes less wastage in men through reactive arthritis than does dysentery; it is the main cause, however, of sporadic cases of Reiter's disease in the peace-time soldier and this has been confirmed by Dutch and French studies(24,25).

The early authors were astute enough to recognise the association between dysentery and arthritis, but there were no doubt many other swollen knees and painful heels on the battlefield, in whom previous dysentery or concomitant (and perhaps asymptomatic) urethritis had not been considered to be causal. It may be argued that some of these reports could equally represent a gonococcal arthritis or even inflammatory bowel disease associated arthritis; they should be judged in the light of the recognised Reiter's epidemics since the Great War.

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