

## SCABIES — A RETROSPECT

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“The longer you can look back, the further you can look forward”

Sir Winston Churchill<sup>7</sup>

Scabies is one of those diseases, known since the earliest periods of antiquity. Clinical descriptions of scabies are found in Indian scriptures of ancient Vedic period. Sage Atreya, the father of Ancient Indian Medicine, had classified skin diseases into 18 categories: 7 major dermatoses (Maha Kushta) and 11 minor dermatoses (Kshudra Kushta)<sup>2</sup>. Amongst the minor dermatoses, the description of one called “Pama” fits in with our modern concept of scabies.

Atreya is said to have lived and taught at the famous University of Takshasila around 1000 B.C.<sup>4</sup> The teachings of Atreya and his main disciple Agnivesa were passed down by word of mouth. The first documented evidence of Ancient Indian Medicine is contained in Charaka Samhita written by the famous physician Charaka around 800 BC<sup>4</sup>. Charaka described Pama as :

“Pama svetaruna syavah  
Kandutah pitaka bhrisam”.  
Chikitsasthanam—Ch. 7, Verse 25.

According to Charaka ‘Pama’ is characterised by multiple, itchy light reddish brown eruptions. Susruta (circa

500 BC)<sup>2</sup>, though better known for his surgical mastery, was an astute clinical observer. In his work ‘Susruta Samhita’<sup>10</sup> he described ‘Pama’ as :

“Sasravakandu paridahakabhih  
pamanukabhih pidakabhiruhya  
Spotaih sadahairatisaiva kacchuh  
sphikpanipada prabhavaini-  
rupya”  
Nidanasthana — Chapter 5—  
verse 13.

The description of Susruta is an improvement on that of Charaka. In addition to describing the nature of the lesions and the itching, he pointed out that the favoured sites are: “Sphik”, “pani” and “pada” i.e., buttocks, hands and feet.

Vagbhata (circa 600 AD)<sup>2</sup> compiled the teachings of the ancient masters into his monumental work Ashtanga Hridaya<sup>1</sup>. He gave the description of ‘Pama’ as :

“Pitakah pama kandukleda  
rujdhihakah  
Suksma Syavaruna bahvyah  
Prayah sphikpanikurpare”  
Nidanasthana — Chapter 14—  
verse 28.

‘Pama’ is characterised by itchy, moist, multiple, small reddish brown eruptions. They are mainly seen on the buttocks, hands and elbows. Does not this approximate well with our modern concept of the disease ?

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Mention about scabies as a skin disease is found in the ancient Hebrew scriptures. Amongst the many skin diseases included under the title of 'Zaraath', scabies is one. Though in English translations, the word Zaraath has been rendered as "leprosy" — authorities like Hebra & Hirsch<sup>8</sup> maintain that the word was used to denote not only leprosy, but also other skin diseases like scabies, syphilis and eczema<sup>6</sup>.

The ancient Greeks were also acquainted with scabies. However, they had no specific name for it. The term 'psora', which means 'the itch', was used for a number of cutaneous eruptions including scabies. Hippocrates (460–370 B.C) regarded 'psora', not as a disease entity, but as the cutaneous manifestation of disturbance of body humours. He recommended internal, rather than external therapy for the disease. This idea continued through the time of Celsus to that of Galen (131–201 AD).

Galen considered scabies to be a systemic disease and warned that improper use of local applications would force the disease back into the body. The systemic nature of the disease and stress on internal therapy were perpetuated by Arabian physicians who translated the works of Galen from Greek to Arabic. As in many other concepts of medicine, Galen's views on scabies prevailed for many centuries, through the Middle Ages and the period of renaissance to the middle of the 19th century, by the translations of Arabised Galenic medicine into Latin by physicians of Western Europe.

Though scabies as a clinical entity was known in ancient times, the etiological agent of the disease eluded discovery even by astute observers. It is not surprising, considering the minuteness of the organism. Not only the itchmite, but mites in general were not probably known until the time

of Aristotle (Circa 300 BC)<sup>6</sup>. The earliest reference to the itchmite was probably made by the Arabian physician At Tabari (Circa 900 AD)<sup>2</sup>. In the seventh chapter of his ten volume treatise on Medicine, he deals with scabies and describes an animalcule that can be removed at the point of a needle. Though, he seems to be describing the acarus, he did not refer to it as the cause of scabies. Many centuries elapsed before any further reference was made to the itchmite in the medical literature.

The first definite description of the itchmite was made by the Englishman Thomas Moffet<sup>(6)</sup>. In his book *Insectorum Theatrum* (1950) he described the size, form, colour, mobility and burrowing habits of the itchmite. He also differentiated acari from peduculi and pointed out that the former is dermatozootic whereas the latter is epizootic. The observations of Moffet are really remarkable when we consider that they were made with the help of a simple magnifying glass, before the time of the discovery of the microscope.

It seems that the observations of Thomas Moffet were well known in England at that time. Reference to an organism similar to that described by Moffet appears in Shakespeare's 'Romeo and Juliet' written in 1594. In scene IV, Act I of 'Romeo and Juliet' Marcutio narrating his dream to Romeo describes the waggoner of Queen Mab as :

"...a small grey-coated gnat,

Not half so big as a round little worm  
Prick'd from the lazy finger of a maid".

Thomas Moffet, though he described the organism well, failed to give any illustrations of it. One of the earliest illustrations of the organism was made by August Hauptmann of Leipzig in 1657<sup>6</sup>. His figure was a caricature, rather than a drawing of the parasite. However Hauptmann's figure is worth-mentioning as it was much better than

many drawings made by later workers, who had better optical aids. In 1675 Heintke<sup>6</sup> produced some fearsome figures of a hairy creature and claimed them to be that of itchmites. Later still in 1687 Griendelius portrayed an almost diabolic figure of an animal in his 'Micrographia Nova'<sup>6</sup> and claimed it to be the itchmite. The terrors sparked off in the learned world and the fears propagated in the sufferers of scabies by the portrayal of such monsters by Heintke and Griendelius were seen relieved by two Italian workers Bonomo and Cestoni<sup>3</sup>. In their letter to the poet-naturalist Francisco Redi in 1687<sup>6</sup>, they described the size, colour, shape, movement and other details of the itchmite. They pointed out the burrowing habits of the mite. The details of the ovum were well shown and they expressed the belief that the itchmite had a sexual form of reproduction.

In spite of the fairly accurate description of the parasite, the ova and its habits by Bonomo and Cestoni, later workers continued to confuse the acarus with pediculi and the controversy of the acarine origin of scabies remained unsettled. Even Linnaeus in his first edition of his *Systema Naturae* in 1735 misclassified itchmites with insecta, even though he later corrected this error<sup>6</sup>.

In 1778, the Swedish naturalist de Geer<sup>5</sup> made faithful representations of the itchmite. His figures excelled all previous ones in details of the various anatomic parts of the organism. It is gratifying to note that his monumental work is still glorified in medical and entomological literature by referring to this organism as *sarcoptes scabie* de Geer 1778.

The next epochal event in the history of scabies, was the publication of the first book exclusively devoted to the subject of scabies. The credit for it

goes to the German worker, Wichmann<sup>11</sup> who in 1786 published his book on the etiology of scabies.

By the end of the 18th century, thus, the details of the organism were well delineated and its etiological role was well documented. However, the acarine origin of the disease was not accepted by all, and bitter controversies continued. On this issue the Paris Faculty of Medicine was still divided into two warring camps in 1833<sup>6</sup>. The acarians defended their theory quoting authorities like de Geer and Wichmann. Anti-acarians ridiculed these reports and insisted that they be shown the living organism itself. Unfortunately no French scientist at that time knew how to demonstrate the itchmite.

In the following year, 1834, Renucci<sup>9</sup> rediscovered the itchmite from its subterranean hide out. On September 15, 1834, living specimens were demonstrated to the French Academy of Medicine by Beaude<sup>6</sup>, one of the Physicians of Hospital St. Louis, whom Renucci had taught the method of recovering the mite. With the publication of his graduation thesis in 1835 "on the discovery of the acarus that causes scabies" Renucci once and for all settled the controversy that had raged for nearly three centuries.

Looking back on scabies reveals many interesting points in the history of medicine. Not only do we find, that many erroneous ideas were held in the past, but that the true story, the correct explanation of facts, even though known, was for one reason or another discarded in favour of some utterly false hypothesis. This should alert us to fallacies that may be current at present and help us to avoid falling into errors like those that have proved disastrous to our predecessors.

The truly epochal significance of the discovery of the cause of scabies by Bonomo and Cestoni, in 1687 and its

rediscovery by Renucci in 1834 is not usually fully appreciated. It is not often realised that the discovery of the causative relationship of the itchmite to the disease scabies was the first establishment in medicine, of a definitely known cause for any of the diseases of man. It is even more significant when we consider that this was made almost two centuries before the discovery of the first bacteria known to produce disease in man, which was *Mycobacterium Leprae* in Leprosy by Hansen in 1874.

The discovery of itchmite as the cause of scabies, thus, sparked off the development of the theory of the microbic origin of infectious diseases. It dealt a powerful blow to the doctrine of humoralism which as a pathological concept had dominated medicine from the days of Hippocrates and Galen well into the 19th century. The rediscovery of the

itchmite by Renucci in 1834, also marked the beginning of the anatomico-pathological period of dermatology inaugurated by Hebra in the 1840s.

The purpose of this paper is to memorialize human achievement and pay tribute to mastery, the distinction of standing head and shoulders above, which in this heyday of the average, is still an inspiring thought. It is hoped that this story of scabies, however imperfectly told, may stimulate interest in those achievements of the past, which help us to solve the problems of the present and act as a foundation for future progress.

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