

Dr. Rudolph Bergh and His Scabies Detector Device

KAARE WEISMANN, MD, PhD

The Skin Clinic, Private Hospital Hamlet, Gyngemose Parkvej 66, DK-2860 Søborg, Denmark. E-mail: weisech@dadlnet.dk

Dr. Rudolph Bergh (1824–1909) became head of the newly established Vestre hospital in Copenhagen in 1886 (Fig. 1). It was built to relieve pressure on Kommunehospitalet (Municipal Hospital) and Almindeligt Hospital (Common Hospital). With the new hospital the total number of hospital beds was 700, to cover the needs of an urban population of only 200,000 individuals. The high number of beds needed was due to the lack of common treatment modalities for the frequent venereal and paraveneal or insons diseases of the numerous *scorta*, the official name for prostitutes. Patients with symptoms were freely referred to the hospital for care and temporarily improved living conditions. Most patients were prostitutes with syphilis or mechanically induced injuries to the genital area. A definite diagnosis could not always be established, as there were no laboratory means available at the time (1). Rudolph



Fig. 1. Dr. Rudolph Bergh, 70 years of age, working in his laboratory. Drawing by P. S. Krøyer 1894 (wikipedia.org).

Bergh examined many patients and made minute drawings and notes of the normal genital anatomy in about 3,000 women. Surprisingly, he did not publish his notes, as he was unable to detect anatomical changes indicating prostitution to be predetermined, in which he believed, but referred to the number of investigations in the annual reports of Vestre hospital. He published a much-praised report on tattoos in prostitutes, illustrated by his colour drawings (2).

Many referred patients also suffered from pruritic diseases, first of all scabies, and as Rudolph Bergh was a qualified zoologist he was interested in studying the infestation.

In the annual report of Vestre hospital from 1884, Rudolph Bergh mentioned a new practical instrument for detecting scabies, illustrated by a depiction of the device, which was most unusual in an annual report (Fig. 2). The small handheld instrument consisted of an adjustable 10 times magnifying lens on a small pole with a loop to move the device, and an ending with a sharpened point as a lancet. When examining a patient for scabies, you first look for a mite burrow. The device can be placed on it, the mite is spotted by the lens and then harpooned by the lancet and removed. The instrument remains in contact with the skin, so the fear of handling a free needle, which is common in young patients, is minimized. By the 10 times magnification lens the extracted mite of about 0.1 mm in length, is verified as *Sarcoptes scabiei* (Fig. 3 a–c).

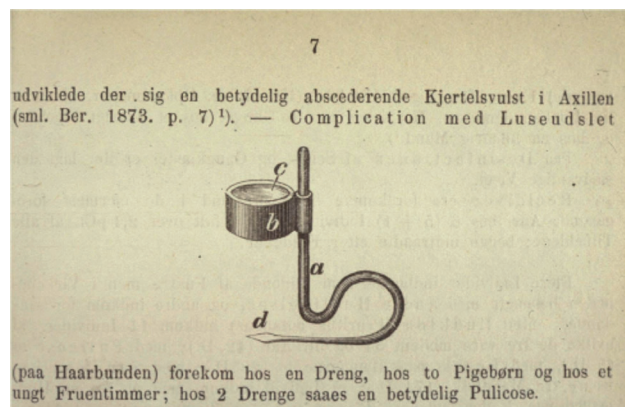


Fig. 2. The scabies detector device with a 10 times magnifying lens that can be moved up and down a pole to obtain focus distance to skin. At its end there is a sharpened point by which the mite is to be harpooned.

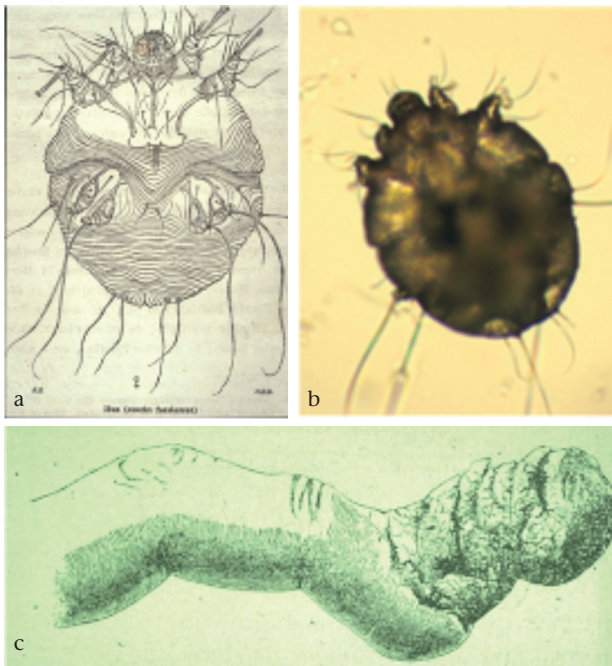


Fig. 3 a- c. Rudolph Bergh studied the anatomy of the scabies mite and made accurate observations. Here is a female mite, the main cause of the itchy disease. As noted under the drawing, the mite is reproduced grossly enlarged (a). For comparison of accuracy a mite is photographed with a 100 times original magnification. Rudolph Bergh's drawing has more and finer details than the photo (b). The finger of a patient with crusted scabies (Norwegian scabies) is carefully drawn by Rudolph Bergh (c).

The detector device can be described as a primitive handheld dermoscope, using the same magnification and the same adjustable lens. The device has no light source or glass plate, which in the conventional dermoscope secures the focus distance, and by applying a liquid minimizes light reflection from the skin.

With a dermoscope the mite is spotted at the end of an air-filled burrow, as a triangular or kit-like clot being the front part (3) (Fig. 4).

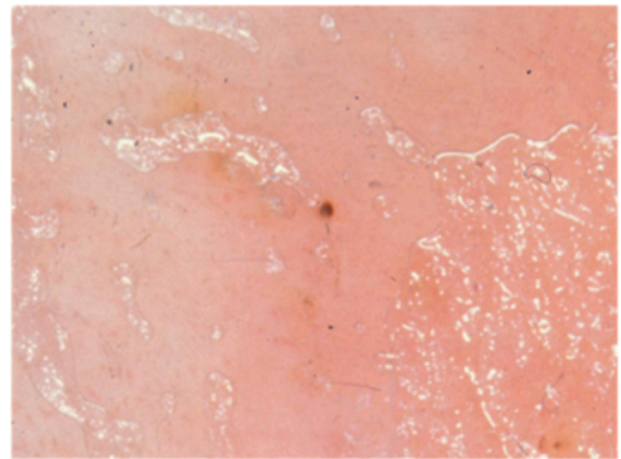


Fig. 4. Dermoscopy of a curled air-filled burrow ending with the mite as a dark cornered spot.

Apart from being a renowned venereologist Rudolph Bergh was especially reputed for studies on the naked gill-breathed sea snail's anatomy. Many of his scientific reports were illustrated by his accurate drawings, as also presented here.

Rudolph Bergh was head of Vestre hospital to his resignation in 1903. From 1911 the hospital was named Rudolph Berghs Hospital in his honour. He had many skills being a venereologist, zoologist, globetrotter as well as an appreciated illustrator and inventor of a practical device for scabies detection.

REFERENCES

1. Weismann K. Vestre Hospital, det senere Rudolph Berghs Hospital. Dansk Dermatologisk Selskab 1898-1998. Dansk Dermatologisk Selskab, Copenhagen, 1998, p. 140-143.
2. Voigt S Smilehuller. Om Rudolph Berghs studier af prostituerede kvinders genitale anatomi. Dansk Medicin-historisk Selskabs Årbog 2009, p. 51-63, Viborg.
3. Danielsen A, Weismann K. Crustaceous scabies (Norwegian scabies) in a patient with AIDS. Ugeskr Læger 1998; 160: 6358-6359.