

Sulfamerazine, sulfadiazine and sulfisoxazole (sulfafurazole) are the sulfonamides of choice. The dose is 3 or 4 gm daily for 3 to 6 weeks; if further treatment is needed, the dose should be decreased to 2 gm daily. Sufficient fluid must be given to maintain a urinary output of 1500 ml per day to avoid precipitation of sulfonamide within the kidney. Inadequate treatment may give rise to resistant strains. Although a combination of tetracycline and sulfonamide therapy may be

optimal, in some cases in which these drugs have failed a combination of penicillin and ampicillin has produced regression of the disease.

The antimonials are not recommended. It is probable that the value ascribed to these preparations in the past has been due to confusion of diagnosis with granuloma inguinale or chancroid, or to an effect on secondary bacterial infection.

## Bartonellosis

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**Synonyms.** Verruga peruana, Oroya fever, Carrión's disease.

**Definition.** Bartonellosis is a specific infection caused by *Bartonella bacilliformis*, presenting two clinical types of disease. The severe form, Oroya fever, is characterized by fever, a rapidly developing macrocytic anemia, and frequently intercurrent infection with high mortality. The benign form, verruga peruana, is characterized by a verrucous eruption of hemangioma-like nodules and by a negligible mortality (Fig. 30-4).<sup>11</sup>

**Distribution.** The disease is restricted to the western portion of South America between latitudes 2° North and 13° South, occurring especially in Peru, Ecuador and Colombia. Its distribution is further restricted to narrow river valleys and canyons at altitudes between 800 and 3000 meters above sea level. It has been reported from both sides of the Andes.

**Etiology.** *Bartonella bacilliformis* Strong, Tyzzer and Sellards, 1915 is a minute gram-negative, rod-shaped or rounded organism found in varying numbers within both the red blood cells and cells of the reticuloendothelial system, especially those of the lymph nodes, spleen, liver, and kidney. *Bartonella bacilliformis* may be classified among bacteria.

In stained preparations of blood, both rod-shaped and rounded forms are seen. The rods are often slightly curved, occurring

singly or end-to-end in pairs or in chains. Frequently, they lie parallel or are arranged in V's or Y's. The rod forms when stained by Giemsa's method commonly show a deep red or purplish granule at one end suggestive of chromatin, the remainder taking a bluish stain (Fig. 30-5).

They may be cultivated best in semisolid nutrient agar containing 10 per cent rabbit serum and 0.5 per cent rabbit hemoglobin. Proteose peptone produces high-intensity growth.<sup>12</sup>

**Epidemiology.** The disease is endemic in certain arid river valleys of the Andes region and is coextensive with the distribution of the sandflies *Lutzomyia verrucarum* and *Lutzomyia noguchii* in Peru. However, the latter does not bite humans and only rarely enters houses. At the present time only *L. verrucarum* has been incriminated as a vector. Other species are reported from the endemic areas in Colombia. The disease is especially prevalent at the close of the rainy season when these flies are most numerous.

Proboscis infections with *Bartonella* have been found in wild-caught female *Lutzomyia*. The source of these infections is unknown since there is no known reservoir host.

The disease is often mild among people of endemic areas, and latent infections without significant symptoms are observed in adults. Immunity is believed to follow both Oroya fever and verruga peruana.

