

The background of the book cover is a light grey with a fine halftone dot pattern. Scattered across this background are numerous small, hand-drawn illustrations of various microscopic organisms, including bacteria, viruses, and cells, some enclosed in circles. These drawings are rendered in black ink and are distributed throughout the entire cover, surrounding the central title area.

Principal Infectious Diseases of Childhood

**NELLES
SILVERTHORNE**

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University of Toronto Press

PRINCIPAL INFECTIOUS DISEASES OF CHILDHOOD

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PREFATORY NOTE

In the pages of this book are notes on infections in children which I have gathered over a number of years. Valuable information has been obtained by consulting my former teachers, by reviewing textbooks, and by referring to my own research and clinical appraisal and treatment of infectious diseases. The book is intended for general practitioners and medical students.

N. S.

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PRINCIPAL INFECTIOUS DISEASES OF CHILDHOOD

CHAPTER ONE

INFECTIONS IN THE NEW-BORN

INFECTIONS in the new-born may be divided into two categories according to whether their effects are local or general.

LOCAL INFECTIONS

Local infections are: omphalitis, mastitis, pustular dermatitis, impetigo, furunculosis, paronychia, conjunctivitis, vaginitis, and cutaneous myiasis.

Most of these conditions can be prevented if proper aseptic techniques are used in connection with all activities of persons caring for the new-born.

Omphalitis

Omphalitis is an infection occurring at and around the umbilicus. A smear and culture of this area should be taken in order to determine the cause, which may be any of the common bacterial types, for example, staphylococcus, streptococcus or *B. coli*; diphtheria also has caused this infection in past years. With the improvement of obstetrical technique and more careful aseptic supervision of the new-born, however, infections of all types in this area are now rare.

TREATMENT. Local treatment should consist of the application of warm compresses followed by an ointment

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containing one of the sulphonamides or antibiotics. These should be applied every three or four hours until the lesion has healed. To prevent a generalized infection of the blood stream, penicillin or another appropriate antibiotic should be administered every four hours or twice daily.

Mastitis

Most babies' breasts are congested in the early days and weeks of life, and a secretion of fluid from them can often be noticed. On occasions, however, an area to one side of the nipple becomes red and swollen. This is the beginning of a breast abscess which may become suppurated, fluctuate and ultimately discharge; it may, however, have to be incised.

TREATMENT. Breasts congested with fluid should be left completely alone. If there is any inflammation, sulphonamides, penicillin, or a broad spectrum antibiotic should be given in appropriate doses by mouth or, preferably, injected every four hours. Most often these breast abscesses become suppurated and fluctuate, and should be incised, drained and dressed with moist dressings until they heal.

Pustular Dermatitis

Pustular dermatitis usually develops from some skin irritation and a low-grade pustular infection. It may appear on any area which is irritated and subject to constant contact with moisture. Particularly vulnerable to it is the skin of the lower abdomen and that covered by the diaper. The lesions consist of a red, inflamed base with myriads of small pin-point pustules superimposed on the erythematous surface.

TREATMENT. The lesions often respond well to bathing with alcohol followed by a dusting powder, such as 1 per cent calomel in starch. If the rash does not respond quickly to this treatment, then an ointment containing sulphonamides or antibiotics is recommended. In most cases, exposure, for several periods during the day, of the infected parts to dry heat from an electric light cradle, placed well away from the baby, is indicated.

Impetigo

Impetigo is one of the most common skin conditions found in the new-born. Although the disease is seen in epidemics in nurseries, babies born at home also develop it. Usually it is caused by the staphylococcus. The lesions, which are quite typical irregular sacs or blisters of skin filled with fluid, occur initially as a red spot $\frac{1}{16}$ to $\frac{1}{4}$ or $\frac{1}{2}$ inches in diameter with irregular borders. The fluid inside the blister rapidly becomes purulent, breaks down and spreads to other areas. The actual reason for the occurrence of these lesions has never been discovered. They occur more frequently in warm weather, crowded nurseries and in areas of the skin where moisture and irritation are liable to occur: the diaper area, lower abdomen, under the arms, and around the neck and shoulders. Often they are very persistent and resist treatment, with new lesions occurring daily.

TREATMENT. The blisters should be carefully broken down and the discharge from them taken up by absorbent cotton. Crusted lesions should be soaked off with soap and lukewarm sterile water. After the lesions have been cleansed in this way, ointments of sulphathiazole or those containing antibiotics should be applied directly to them every four hours. If the lesions are generally

distributed, penicillin or a broad spectrum antibiotic should be injected intramuscularly every four hours or twice daily. All treatment should be continued until the lesions have healed and no more appear. In this disease, as with pustular dermatitis, a light cradle or the heat from a goose-neck lamp helps greatly in keeping the exposed parts dry. Care should be taken that there is no danger to the baby from contact with the lamp or a burn from the heat.

Epidermolysis bullosa, an extremely uncommon, inherited disease, is mentioned here because of its slight resemblance to impetigo. The lesions consist of large bullous blebs with clear serum in them, huge irregular blisters with sterile fluid constantly recurring, leaving red inflamed areas which rarely heal completely. Scarring, deformity, and invalidism result. There is no satisfactory treatment.

Furunculosis

Furunculosis manifests itself as a small subcutaneous abscess. It usually affects new-born children who have not been very well cared for and who belong to the lower socio-economic level. These lesions look like miniature boils, with a somewhat more reddened indurated conical base than is seen in impetigo, and a raised pointed top extruding pus. They are usually caused by the staphylococcus.

TREATMENT. Treatment consists of the application of warm or alcohol compresses, local applications of sulphonamide or antibiotic ointments, injections of one of the antibiotics, and exposure to a heat cradle. If the lesions persist or recur, a course of injections of staphylococcus toxoid should be administered.

Paronychia

These lesions also occur in the early days of the infant's life and are most annoying and at times difficult to treat. The lesion is usually due to the staphylococcus and appears as a red inflamed area along the side of the nail bed which may become purulent and discharge. It is usually seen beside the nails of the thumbs or fingers, but may also be present along the toe nails.

TREATMENT. The same treatment may be employed for this condition as has been outlined for the other skin infections. In addition, it is wise to prevent the patient from using his hands to scratch his face or other parts of his body.

Conjunctivitis

Conjunctivitis in the new-born infant is usually acute, often bilateral, and clinically may be classified according to the nature of the discharge—catarrhal (common), membranous (rare) and suppurative (common).

AETIOLOGY AND DIAGNOSIS. In general, the aetiological agent may be classified as infectious (bacterial, viral) or non-infectious (chemical irritant).

In the latter group, the irritant is usually the silver nitrate solution instilled after birth to prevent ophthalmia neonatorum. The 1 per cent rather than the 2 per cent solution of silver nitrate is used nowadays since it is less likely to cause a severe conjunctival reaction. In such cases the incubation period is short, the ocular discharge appearing within twenty-four hours after birth.

In the infectious group, any of the common pathogens may be encountered, the clinical picture varying accordingly. Pathogenic staphylococci, pneumococci, strepto-

cocci, coliform and influenzal bacilli may be cultured. Special mention should be made of acute gonococcal purulent conjunctivitis ("specific conjunctivitis") since it frequently causes corneal complications and blindness if untreated. The incubation period is relatively short, the discharge beginning one to three days after birth.

Only one viral agent may be encountered in conjunctivitis of the new-born. This virus infects the female cervix causing a mild, often unnoticed, leukorrhoea. It is transmitted to the eyes of infants at birth and is known as Inclusion Blenorrhoea (Inclusion Conjunctivitis). Its incubation period varies from five to ten days. Clinically, it causes a mild purulent conjunctivitis but occasionally this may be very severe, especially if secondary infection is present. Diagnosis is made by finding the typical intra-epithelial cytoplasmic inclusion bodies in conjunctival scrapings stained with the Giemsa or Wright method.

This virus may be transmitted to children and adults through the water in swimming pools and has been called Swimming-Pool Conjunctivitis. Fortunately, corneal complications are unknown and the disease is self-limiting.

TREATMENT. In general, any pus or discharge should be removed by simple wiping and, if necessary, irrigation of the conjunctival sac with warm saline. This is followed by frequent instillation of sulphonamides or antibiotics. The treatment may be changed in one or two days if indicated by the laboratory sensitivity tests or if the clinical response is poor. If the infection is severe or if there is any difficulty opening the eyelids to instil the medication, then systemic therapy may also be used.

For the gonorrhoeal cases penicillin is still the treatment of choice, whereas with inclusion conjunctivitis, sulphonamides or one of the broad spectrum antibiotics appear to be effective.

Vaginitis

Vaginitis in the new-born is not uncommon. At birth a white mucous discharge is always present between the labia minora. This discharge is quite normal. Occasionally, however, a non-specific vaginitis is present and some infants may suffer from a gonococcal vaginitis from which there is a profuse purulent discharge.

TREATMENT. Vaginitis in the new-born should be treated by gentle irrigations or wiping the discharge away with a sterile cotton wool soaked in sterile water, and by the injection of penicillin or a broad spectrum antibiotic every four hours until the discharge has cleared up and cultures of the discharge repeatedly show no growth of the offending bacterial species.

Cutaneous Myiasis

This disease is extremely rare, occurring, in this climate, in the month of June and is caused by a gravid female insect (*Wolfarhtia vigil* Walker) which deposits larvae directly into the normal tissues of the new-born. The larvae crawl between the creases of skin or skin folds, such as those over the eyelids, between the orbit and the eyelid, at the neck, under the arms or at the groin. The parasite then burrows deep into the superficial layers of the skin causing a small furuncle-like lesion.

TREATMENT. Each larva should be extracted with for-