CARE OF SCARLET FEVER PATIENTS

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At present there is no generally accepted treatment for scarlet fever. It is a self-limited disease and nothing that we now know will shorten its course or abate its severity. Our work consists in the prevention of complications as far as is in our power and in so assisting Nature in her efforts at repair as to make convalescence as rapid as possible and recovery complete. Such is the number of possible complications and the scope of care desirable that an anatomic division has seemed a logical method of presentation of treatment. Therefore after a brief discussion of diet, the untoward possibilities will be taken up in this way rather in the order of frequency.

DIET

As long as the patient has a temperature above normal, the diet consists entirely of water, milk and malted milk or milk-sugar. This diet is also adhered to when the febrile albuminuria persists as a faint trace, with or without casts, after the fall in temperature. While it is realized that the weight of the patient should be the index to the number of calories given, the accompanying table has proved of great service as a rapid, rough guide to the amount of milk and water desirable and to its reinforcement with sugar. As some patients will be on this diet for three or four weeks, the amount of food given during this time has an important bearing on convalescence.

TABLE SHOWING AMOUNT OF MILK AND SUGAR GIVEN DURING FEBRILE STAGE (SEVEN FEEDINGS A DAY, AT TWO-HOUR INTERVALS)

	Age, Years	Calories	Amount Each Feeding, Ounces	Total Ounces Milk	Total Ounces Water
Children..	1- 2	600	4	28	28
Children..	2- 6	1,000	6	42	42
Children..	6-15	1,350	8	56	56
Adults....	....	2,000 to 5,000	10	70	56

To the milk given to adults it is necessary to add 3 to 7 ounces of milk-sugar to make up the calory content.

The number of feedings will of course have to vary in different cases as the arrangement of sleeping hours, the amount of milk borne well at a time and the appetite of the patient are determined. If milk-sugar is well taken it provides a slight diuretic and slight aperient action. In cases in which milk is not well borne, buttermilk may be given. Orangeade, lemonade and cream of tartar drink flavored with lemon may be used freely in place of water.

When the temperature is normal and has been normal for twenty-four hours, farinaceous foods may be given. A satisfactory way is to add new foods gradually: for example, cream soups with crackers are given the first day the diet is increased, milk toast the second, rice or farina pudding the third and so on. As the patient is given farinaceous foods, and these come more and more to replace the milk, it is necessary to exercise some care that the total amount of fluid in twenty-four hours be kept up. It is desirable that in patients over 6 years old not less than 100 ounces of fluid be given. As solid foods are added, the milk can be replaced by water.

It is not wise to take further liberties with the diet until the twenty-first day. The danger of giving nitrogenous foods increases as the twenty-first day is approached and should not be risked no matter how mild the case. On the twenty-first day fish may be given, then green vegetables, then bacon, to which are then added other red meats, chicken, meat soups, tea, coffee or cocoa and last of all eggs. The diet list in use at present at the hospital follows:

Milk Diet.—When specially ordered, milk-sugar, malted milk, buttermilk, cream soups and top milk mixtures.

Farinaceous Diet.—Crackers, bread, toast, zwieback, arrowroot, rice, cornstarch, farina, and preparations of these, baked potatoes, barley jelly, other cereals, stewed prunes, and baked apple with cream.

Light Diet.—In addition to the above, fish, green vegetables, bacon.

General Diet.—Red meats, fowl, meat soups, pastry, tea, coffee, cocoa and eggs.

SKIN

For the discomfort during the rash, the skin may be anointed with cocoa butter or cold cream. If the itching be excessive, there is nothing which gives as much relief as gently sponging with 0.5 per cent. dilution of liquor cresolis compositus. At the hospital a proprietary emulsion of soap with tincture of benzoin and boric acid is used a great deal. No greasing is done during desquamation unless there is discomfort. Control of the desquamated epithelium is not so much a factor in a contagious-disease hospital, as the excretory function of the skin is deemed more important.

Means to hurry the process of desquamation are many. It is impossible to give any one best method. As the soles of the feet are the last to desquamate, it is their treatment with which we are concerned. As soon as patients are up and about they are encouraged to soak their feet well each day in hot water, after which the feet are rubbed with a rough towel or moist pumice stone. The bottoms of the feet may be painted with tincture of iodin. Salicylic acid ointment, 6 per cent., may be bound on over night.

HAIR

Itching of the scalp during the first three weeks is treated and prevented by washing with alcohol. This should be followed by rubbing in a small amount of white petrolatum. At the end of the fourth week and twice during the fifth and sixth weeks the hair and scalp are washed with tar soap, then with the following hair lotion:

℞	Gm. or c.c.	
Hydrargyri chloridi corrosivi.....	5	gr. iv
Boricii acidi	20	gr. cl
Glycerini	30	ʒ ½
Alcoholis	120	ʒ iv
Aquæ .....q. s. ad	250	ʒ viij

The hair and scalp are then dried thoroughly and the following hair tonic well rubbed in:

℞	Gm. or c.c.	
Quininæ sulphatis	4	gr. lx
Olei ricini	30	5 ʒ j
Olei bergamottæ		5 ggt. v
Olei neroli		5 ggt. v
Spiritus ammoniæ aromatici q. s.ad	250	ʒ viij

Mix and dispense with "shake" label.

EYES

For the conjunctival injection seen in many cases during the first week, cold boric acid compresses and exclusion of any bright light from the room are sufficient.

In the more severe cases, a drop of epinephrin chlorid in each eye followed by a drop of 5 per cent. argyrol is indicated.

THROAT

The care of the throat can well be summed up in one word—cleanliness. This is best accomplished by irrigations of 4 per cent. solutions of sodium bicarbonate, or lime-water, or normal saline. At the hospital the last is used. The irrigations are given at a temperature of 110 F. with a fountain syringe, the bag of the syringe held about one foot above the head of the patient. The patient is turned on his side, protected by a rubber blanket, and the saline at low pressure allowed to run over first one, then the other, tonsil. The head is turned enough so that the fluid after bathing the tonsil runs out of the mouth and into a pus basin. Sometimes a little practice is necessary before this can be done satisfactorily, but on the third or fourth attempt usually the irrigation is borne very well and the patient experiences immediate and marked relief. Irrigations should never be given with much force as the exudate may be forced back into the pharynx and so to the ears. In children too young to cooperate with the nurse, a sheet is pinned about the patient securing the arms and legs, a small roll of gauze bandage placed between the teeth and the irrigations given on a small dressing table. Sometimes with mild throats it is sufficient to cleanse the tonsils gently with a cotton pledget, soaked in sodium bicarbonate solution, wound about the nurse's finger.

Gargles are not used. Some relief is often obtained by a lozenge of the following composition:

℞	Gm. or c.c.	
Mentholis	.007	♏ 1/80
Olei anisi	.002	gr. 1/35
Acidi benzoici	.005	gr. 1/12
Eucalyptolis	.004	♏ 1/16

Small pieces of ice held in the mouth sometimes give distinct relief.

External treatment may be in the form of heat, cold or wet dressing. For routine treatment the throat-bag filled with cracked ice is used. This seems to give more relief and better results in most cases than any other measure. There is, however, the exceptional case in which large, hot poultices of flaxseed are to be preferred. The use of wet dressings will be discussed under "Lymph-Nodes."

NOSE

The nose should never be irrigated unless both middle ears are involved. Drainage of the nose is accomplished by keeping the secretions as fluid as possible and by blowing the nose properly. Rendering the secretions fluid is best accomplished by putting in each nostril white petrolatum, which is made slightly more fluid by placing the tube in hot water before each application. This should be done four or five times in twenty-four hours. The patient should be taught to blow the nose gently and frequently and not to sniff secretions back into the nasopharynx. In conjunction with the petrolatum treatment, if there is congestion and swelling of the mucous membrane, the nose is sprayed with eucalyptol and menthol 1 per cent. in liquid petrolatum. When this treatment does not suffice and the patient does not breathe readily through the nose, a cotton swab on an applicator, the swab soaked in epinephrin chlorid or adrenalin inhalant, is applied to each side of the nose. This is followed by a similar application of 20 per cent. argyrol.

When the acute stage is over and swelling of the mucous membrane with exudate persists, the glycerite of tannin either full strength or diluted with water often gives good results. This may be used to advantage in a similar condition of the throat.

EARS

Proper care of the nose and throat is the best preventive of middle-ear trouble. Patients should always be warned against inflating their ears, as many discover that this is temporary relief from the sense of fulness they experience as a result of swollen eustachian canals.

Daily examination of the tympanum should be made by the physician. This is very important. The onset of many cases is very insidious and indeed the first warning may be a discharge from the ear. The tympanum may rupture and pus be discharged from the middle ear with no warning of pain or rise of temperature.

If otitis media does occur, incision of the tympanum should be performed early. This may or may not be followed by irrigations of warm sodium bicarbonate solution every two hours. If irrigations are not given, the canal should be kept open by cleaning thoroughly with cotton on an applicator, the frequency depending on the amount of discharge.

The prophylaxis of mastoiditis is the proper treatment of the otitis media. Throat-bags filled with ice should be applied to the mastoid as soon as the tympanum is incised. Or cold may be applied to the mastoid region by means of the Leiter coil. With tenderness over the antrum relief is often obtained by means of leeches placed over the mastoid. Cases of otitis media should be seen daily by someone familiar with the ear conditions of scarlet fever. It is such a person who should decide when to operate.

LYMPH-NODES

With the onset of scarlet fever there is a polyadenitis of varying intensity. Nodes other than the cervical rarely need attention. Care of the nose and throat contribute to preventive treatment of these nodes. At the Hospital for Scarlet Fever application of the ice-bag to the throat during the first week of scarlet fever may be said to be almost a routine procedure. This treatment is sufficient for most cases. Occasionally there is a case which does better with poultices. For the case which does not improve with hot or cold applications, dressings of the following are given:

℞	Gm. or c.c.	
Plumbi acetatis	60	ʒ iv
Aluminis pulveris	60	ʒ iv
Alcoholis	250	ʒ xvi
Glycerini	120	ʒ viii
Aquæ	1000	ʒ lxiv

Mix and dispense with "shake label."

Huge, very wet dressings of this are kept on the enlarged nodes continuously. These dressings are most efficacious at the temperature of melting ice. With this treatment there has not been a case of suppurative adenitis in nearly 400 cases of scarlet fever at the hospital. If suppuration takes place, incision and free drainage are indicated.

LUNGS AND PLEURÆ

Bronchopneumonia, which may exist, is usually an additional focus in a severe general infection, and should be treated as when occurring elsewhere.

Pleurisy is a troublesome complication, usually occurring in the third or fourth week. All effusions, no matter how small, should be aspirated early. Pleurisy

in scarlet fever is likely to become suppurative, when operative interference is indicated.

Scarlet fever in a tuberculous subject is a very serious thing. There is usually a lighting up of the tuberculous process. In such cases the danger of the tuberculosis becomes greater than the risk of nephritis and a more liberal diet should be given. Bacon which has been soaked in cold water several hours can be given early with little risk. Cod liver oil, if borne well, should be given. In many cases it seems desirable to give two eggs in milk per day. One egg can be beaten up in a pint of milk to be taken in two instalments, two hours apart with a glass of water in between. Fresh air is important. The rooms at the hospital are supplied with fireplaces which give forced ventilation. The roof of the building is available for patients at all times of the year.

HEART

The systolic murmur heard over the precordium, which is described by many authors as a symptom of scarlet fever, may be readily prevented in most cases. It is due to one of, or a combination of, three causes, anemia, relative mitral insufficiency and endocarditis. The anemia may give a hemic murmur, or be a contributing factor in a relative insufficiency by throwing extra work on a heart muscle, the tone of which has been diminished by the virus of the disease. If the hearts of the patients who are allowed to get out of bed the second and third weeks of the disease are watched, they will be seen in many cases to dilate slightly and a systolic murmur will appear at the apex. An active endocarditis, either simple or infective, may appear. This is more likely in cases which are very septic, with high temperature.

It is the custom at this institution to give iron to all patients after the temperature has remained at normal for twenty-four hours. The preparations used are either ferrous carbonate powder in capsule, five grains three times a day, or the following:

℞

Iron and potassium tartrate.....	1 part
Glycerin	2 parts
Water enough to make.....	12 parts

Mix. One teaspoonful in water three times a day.

Patients should be kept in bed until the twenty-fourth day of the disease, with one pillow until the eighteenth. It is desirable that the patient should attain the sitting position gradually. Two pillows may be allowed on the nineteenth day, three the twentieth, and so on, five pillows being so arranged as to allow sitting up in bed. On the twenty-fourth day an hour in a chair beside the bed may be allowed. Progress from here on should also be gradual, permitting a little longer time up each day, and a little more activity, the heart and pulse being carefully watched meanwhile as a guide to latitude in this direction. It is rare that digitalis is indicated. For routine use, as has been advised, it is surely too much of a kidney irritant.

During the early weeks of the disease the patient not only should be kept in bed but also should be kept quiet. This depends a great deal on the nursing. The allaying of discomfort and the prevention of consequent tossing and turning by sponge baths, by hot water bottles to cold feet, by frequent smoothing of a well-made bed and by the many things that comprise nursing comfort do much to conserve the heart. Insuring a proper amount of sleep in twenty-four hours is also important. The bowels should move freely, daily, by catharsis if necessary. Fresh air should be provided in abundance. At the Hospital for Scarlet Fever a screen is placed between the window and the bed and the window always kept open. This, with the open fireplace, gives forced and adequate ventilation. At this hospital also convalescent patients are moved to a different floor in the building as soon as up and about. A recreation-room is provided with sound-proof doors separating it from the rest of the hospital.

If endocarditis, either simple or infective, occurs, the period of rest is of necessity longer. Salicylates are of doubtful value in simple endocarditis. Vaccines and serums may be tried in the infective variety. Pericarditis either simple or purulent may occur. The treatment is the same as when coming in the course of any other acute infection. Myocarditis is rare. When it does exist the treatment is as elsewhere.

BLOOD

Just what blood condition we have to deal with in scarlet fever in the so-called septic cases, we shall probably know better when we know what the infective agent of scarlet fever is. That there is a specific virus apart from the streptococcus is suggested by the different courses of very serious cases when large doses of polyvalent streptococcus serum are injected. Some cases seem to show very marked improvement, while others show no reaction whatever. This suggests that where there is streptococcus septicemia the serum in sufficient dosage is of value, and that where the symptoms are due to another infective agent the serum is useless. At present we can say that the serum should be administered in all septic cases by someone experienced in its use.

STOMACH AND INTESTINES

Nausea and vomiting are very constant symptoms at the onset of scarlet fever. The nausea may be slight, the patient vomiting once or twice the first day, with immediate relief. Or the nausea may be marked and the vomiting severe and prolonged. In the latter cases there is pain over the epigastrium and the area of the stomach; hyperesthesia is very marked, sometimes so severe that the patient cannot bear the weight of the bedclothes. Bismuth subcarbonate in doses of 60 grains usually relieves these cases. If this fails 6 drops of 1 per cent. solution of cocain in a wineglassful of water every fifteen minutes for four doses will help.

During the latter part of the fourth week and the fifth week heartburn is sometimes a very distressing symptom. This is relieved readily by milk of magnesia in teaspoonful doses. It is well to cut down the diet somewhat for a few days, particularly such food as may be taken after 6 p. m.

Constipation is the rule in scarlet fever, though in some cases there is diarrhea at the onset. Our choice of a cathartic should be one which does not irritate the kidney, and one which does not reduce too much the bulk of the urine. A tea made of senna leaves fills these requirements and is very useful during the febrile period. Rhubarb, aloes and cascara sagrada are other anthracenes which may be used. Castor oil may be used alternately with one of the anthracenes. As a general thing salines are not desirable, as they decrease too much the bulk of the urine. The jalapin and colocynthin groups, the mercurials and the aromatic preparations of the anthracenes should all be avoided, as they produce kidney irritation.

KIDNEY

The diet outlined above has been selected with the idea of keeping up the weight and strength of the patient with the smallest possible amount of kidney irritation. The amount of fluid recommended is designed to keep the amount of urine between 70 and 80 ounces for twenty-four hours. The specific gravity of the urine should be maintained below 1.010. There can be no doubt in the mind of anyone who has watched and examined the urine in a large number of scarlet fever cases in which all kinds of diet have been tried that a diet high in proteid, particularly a diet with eggs, during the first four weeks of scarlet fever is very dangerous. The urine should be examined each day for albumin and casts. Cream of tartar lemonade should be given to make the urine bland. If with a sufficient amount of fluid taken by the patient the urine continues to be of a specific gravity of over 1.010 or of a small amount or both, the acetate, bicarbonate and citrate of potassium, 7½ grains of each, in water may be given every three or four hours. Another procedure which may give warning of kidney insufficiency, even before urinary findings are significant, is the daily taking of blood-pressure.

Many figures have been published as to the frequency of nephritis during scarlet fever. One reason for the great variation in results may be due to the undoubtedly different character of different epidemics. Another reason may be that different reporters have different things in mind when they speak of nephritis. It is likely that there is cloudy swelling of the kidney in most cases of scarlet fever, while a nephritis that lasts for weeks or from which the patient does not recover is rare when proper precautions are taken. When nephritis does occur treatment should be begun early, the accessory channels of elimination being made use of to relieve the kidneys, the urine made bland with saline diuretics and increased by forcing fluids, the diet restricted to milk.

JOINTS

As the temperature falls it is a common thing for the patient to complain of transient pains and stiffness in the joints. The small joints of the hands, shoulders, knees and ankles are the joints most often affected and in this order. Occasionally the pain is severe and there is heat, redness and swelling. Prevention of this condition is attempted by the use of outing flannel night clothes, the administration of alkalies and proper catharsis. When it does occur a brisk saline purge should be given. Alkalies should be administered until the urine is alkaline. Salicylates may be given to allay pain. Unlike rheumatism friction helps these joints and if the following lotion be rubbed into the joint well two or three times a day there will be considerable relief.

℞

Olei gaultheriæ	1 part
Mentholis	50 parts
Petrolati liquidi	1 part

Rarely these joints will go on to suppuration. Surgical procedure is then indicated.

NERVES

The nervous symptoms follow roughly the height of the temperature as to their severity. For the milder cases with slight nocturnal wandering, with bad dreams and night starts, a warm sponge bath and 15 grains of the ammonium bromid are usually sufficient. For the more severe delirium the patients are packed in blankets wrung out in hot water. This may be supplemented by 5 grains of acetphenetidin with ½ grain of codein. If a patient with a temperature of 106 F. is packed for ten minutes in blankets wrung out in water 103 F. his temperature will fall and his nervous symptoms be lessened. The temperature of the disease never requires treatment.

DIPHTHERIA

All patients with scarlet fever are kept in separate rooms. They are given individual bed-pans, urinals, thermometers, atomizers, medicine-glasses, irrigating-bags, solution-basins, feeding-tubes, all of these being marked with the patients' room numbers. A culture is taken from the throat of each scarlet fever patient on admission and again if a suspicious patch later appears in the throat. If Klebs-Löffler bacilli are present, antitoxin is given and the patient is removed to an isolated part of the hospital.

Foot of East Sixteenth Street

NEPHRITIS IN PREGNANCY*

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Internists distinguish the following principal forms of renal diseases: acute nephritis and chronic nephritis. Of the latter there are two grand divisions, the parenchymatous, with its three forms, large white kidney, large red kidney and the secondary contracted kidney; and the chronic interstitial or primary contracted kidney, which is accompanied by cardiac hypertrophy and general arteriosclerosis. The accoucheur, in addition to these, must consider the kidney of pregnancy, its aggravated form, the so-called pregnancy nephritis, and the kidney changes which are a part of eclampsia. Since even the internists are not in perfect accord regarding the classification of their physical findings, and admit that the various recognized varieties of disease may be associated or co-related, it is not to be expected that clinically the accoucheur will be able to identify absolutely the many conditions presented for treatment.

Primary acute nephritis may develop during gestation from the same causes which operate outside of it; for example, exposure to cold, chemical poisons, ptomainemia, scarlatina, angina and septic affections. Antecedent septic processes make the kidney more vulnerable, a tendency which is aggravated by pregnancy. Acute nephritis cannot be clinically differentiated from the "pregnancy nephritis" which often leads to eclampsia. That a previously healthy pregnant woman, after a severe angina or exposure to cold, develops nephritis and convulsions is an observation I have made twice. The discussion of such cases properly belongs to eclampsia, with which it is practically though not pathologically identical.

Chronic nephritis may exist before pregnancy, the patient being hardly aware of the fact, until the strain thrown on the kidneys by advancing gestation brings the latent disease to the surface. Again, repeated abortions in a woman cause an examination of the urine to be made, and a slumbering nephritis is discovered. In other cases a known nephritic becomes pregnant. In all these instances, the results are the same and may be considered under two headings, the effects of gestation on nephritis, and the influence of nephritis on the reproductive function.

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