a case without taking the precautions to prevent infection which are available by regular instillation of an antiseptic. One may say with truth that, as a catheterized bladder will be an infected bladder, so also will a drained bladder.

Infection after Prostatectomy.

Some degree of inflammation of the bladder probably occurs in every case after suprapubic prostatectomy, generally because the bladder was already infected. In the ordinary case the infective process causes no anxiety, it does not lengthen the period of convalescence, and it does not persist after the wound is healed. But septic changes occurring in the bed of the prostate may have serious consequences; sometimes a more or less prolonged suppuration occurs; epididymitis is not uncommon; septic thrombosis of the prostatic veins leads to pelvic phlebitis with oedema of the legs, or even pulmonary embolism. Further, the infection may spread to the kidneys and cause pyelitis, pyelonephritis, pyonephrosis, or multiple abscess formation in the substance of the kidney. It is probable that in the majority of cases in which these serious complications arise the kidneys were infected before operation; but, as I have said before, we have no means of determining this with safety. These septic complications are particularly likely to arise in cases with dilated ureter orifices and impaired renal function.

In order to minimize the risk of these complications occurring I believe that antiseptic instillations should be continued after the prostate has been removed. The drainage tube, not too large, with two attached Carrel tubes, is used for the first few days; then, the drainage tube being discarded, one Carrel tube is inserted into the bladder; later, if thought advisable, a double-channelled catheter is passed and the instillations continued through one channel. Instillation is deferred for the first twelve hours after operation to avoid the risk of disturbing clot and exciting haemorrhage; instillation is much less likely to induce a secondary haemorrhage than is bladder lavage. True secondary haemorrhage is due to septic changes in the bed of the prostate, and these changes are much less likely to occur when regular antiseptic instillation is practised.

It is important not to be in too great a hurry to obtain healing of the suprapubic wound after prostatectomy, in cases of serious infection of the bladder. I was asked lately to see a case where the wound had healed and the patient was passing urine ten days after prostatectomy, but pyuria persisted and increased, and the patient died from septic pyelonephritis.

USE OF BLOOD UREA ESTIMATION IN DETERMINING THE NEED FOR PROSTATECTOMY.

Some degree of enlargement of the prostate is extremely common. Many elderly men suffer from frequency of micturition, and examination shows a degree of enlargement, with some residual urine. A large proportion of these men never experience any really serious trouble with the prostate. If they are not interfered with and not infected, they end their days comfortably, despite the disability. Prostatectomy is here unnecessary and meddling. They may even have an attack of retention, necessitating the use of the catheter for a few days. If not infected, recovery may ensue and no active treatment be required. But they require watching very carefully, and here the value of the blood urea test is most noticeable. If the proportion of urea in the blood shows a tendency to rise steadily in a patient known to have an enlarged prostate, even if his symptoms are not aggressive and there is no infection, haemorrhage, or distension of the bladder, the desirability of prostatectomy must be considered.

CONCLUSIONS.

1. Blood urea estimation is a reliable guide to the functional capacity of the kidneys.
2. Its estimation should be carried out in every case of enlarged prostate before operation.
3. Blood urea figures over 25 point to the desirability of a period of preliminary treatment, with drainage of the bladder either by catheter or through a cystotomy wound.
4. If the tied-in catheter is used further blood urea estimations will show whether improvement is taking place.
5. If not, a cystotomy should be done and further estimations carried out.

6. When the blood urea figures fall to under 30 prostatectomy may be done, the general condition of the patient being in other respects satisfactory.

7. In preliminary cystotomy and regular antiseptic instillation we have a method of dealing with cases of impaired renal function, whether due to back pressure only or to back pressure and renal infection. We can estimate the impairment in renal function by estimating the blood urea; we can only estimate the improvement in the infection of the kidneys by ordinary clinical observation. If the blood urea figures are normal, with a badly infected bladder, it is probable that one may assume that the kidneys are not yet infected.

DISEASES OF INFANTS DUE TO PROLONGED FEEDING WITH EXCESS OF CARBOHYDRATES.

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CHILDREN'S as well as adults' food must consist of a suitable mixture of protein, carbohydrate, and fat, besides water, salts, and some indefinite specific substance, though of course it is known that adults can live for a considerable time on a diet mainly composed of two of these substances. Here in Denmark Hindlede has shown that it is possible to exist on a diet comparatively free from protein, so long as it contains plenty of carbohydrate and fat; and the Eskimos' mode of living, and our experiences in the treatment of diabetes, show that man can live quite well on a diet chiefly consisting of protein and fat. On the other hand, it is beyond question that in the long run man suffers from such a one-sided diet, and if left to himself he will always try to vary his food.

As regards infants, we know that they too can thrive for some time on a diet poor in protein. Some years ago Biedert's cream treatment was much in use for infants; this was, however, abandoned, not because cream is particularly poor in protein and thus has a detrimental effect, but because the children, owing to the excess of fat, suffered from acute or chronic dyspepsia, leading occasionally to atrophy.

Feeding with Finkelstein's albumin-milk, which, when it was first tried, consisted almost exclusively of protein and fat, showed that infants are very sensitive to an insufficient supply of carbohydrates. Even a short course of this diet may lead to collapse. Carbohydrates are essential for infants, and they will digest not only sugar, but small quantities of starch also.

Formerly all starchy food was considered most harmful to infants, and diseases such as rickets, anaemia, and scurvy were ascribed to it. All the old specialists in diseases of children, therefore, prohibited the use of starch in the diet of children under 12 months. We now know that this is not so, and we give starchy food to infants suffering from a number of complaints, with great benefit. Buttermilk, malt and skimmed milk, contain, in addition to protein, large quantities of carbohydrates, consisting of sugar and starch, and this diet apparently often suits the infants admirably. It is, however, destitute of fat, and it is for this reason, as well as on account of its richness in carbohydrates, that it improves the condition of infants suffering from chronic dyspepsia and infantile atrophy.

The question whether infants can thrive without fat is at present of particular interest in Germany and Austria-Hungary, where there is a considerable shortage of fats. Pirquet has investigated this question, and has recently published his results. He changes abruptly from the ordinary diet to one in which fat is lacking, feeding the children on centrifuged milk to which is added plenty of cane sugar. In spite of the sudden change of diet he can find no change in the children's condition; they thrive and develop as before. Pirquet comes to the conclusion, therefore, that there is no apparent fat minimum for man, so long as the absence of fat is made up for by double the quantity of carbohydrate. That this conclusion is wrong the following considerations seem to prove.

As regards adults, we have no record of a diet consisting solely or chiefly of only one of these substances. No man will, of his own accord, live on protein alone, fat alone, or carbohydrate alone. The only instance of such a diet

being in use in Denmark is under the penal laws, when imprisonment with bread and water is resorted to. This means that the prisoner is fed on a diet chiefly consisting of carbohydrate, with only a small addition of vegetable protein. Six periods of five days, however, is the longest time permitted for this punishment, and even then it is interrupted every fifth day, when the prisoner is given ordinary food. There is no reason to think that any permanent harm ensues to the prisoners from this treatment, so long as they are otherwise in good condition, but they are said to be in a most miserable state when the punishment is over.

With regard to children, a diet of this description is, however, not at all uncommon, particularly for small children who are entirely dependent on what other people give them. Infants are often kept for weeks, even for months, on a diet consisting of carbohydrate, with a small amount of cereal proteins, which greatly resembles the prisoner's diet of "bread and water." This is the case when older children are put on the so-called "constipating diet," consisting mainly of barley water, oatmeal gruel, biscuits, rusks, bread, and occasionally bilberry juice, in addition to a kind of pudding made of rice boiled in water. In the case of infants, they are kept on a barley water and oatmeal diet for a long period, and sometimes the mothers feed their babies mainly on biscuit food. Feeding entirely on patent foods is very nearly the same thing, as most of these productions are in reality only refined biscuit foods.

If this food is merely given for a couple of days, or as an addition to the natural diet, or, again, with any of the ordinary milky diets, it is excellent. It is only when carbohydrate forms the main part of the food, and is continued for a long time, that it will be the cause of various forms of sickness.

The diseases caused in this way correspond only partially with the conditions described by the older specialists in children's diseases as due to a starchy diet. Only during the last few years have the conditions which occur when the child is fed on a diet excessively rich in carbohydrate been elucidated. The German doctor Czerny and his followers (Keller, Gregor, and Rietschel) gave the first and best descriptions of them; "Mehlnährschaden" he calls them. These disorders were apparently seldom met with in Germany in the past, whereas they seem to be of rather frequent occurrence in Denmark, judging from our experiences at the State hospital. As by degrees they become better recognized these complaints will be seen mostly in the form of mild attacks, seldom in their more pronounced forms.

The diseases arising from prolonged feeding with carbohydrate, with the relative exclusion of animal fats and proteins, vary apparently according to the child's age and original state of health and to the length of time during which the child was subject to the harmful diet. It has, however, not yet been possible to differentiate various forms of the disease, corresponding with the various carbohydrates. All kinds of starch and sugar seem equally injurious when given alone and for a prolonged period.

The following cases show the changes in the conditions of new-born and delicate babies after feeding them on carbohydrates alone for a long time:

Carl C., born June 21st, 1913; entered hospital August 30th, 1913; died August 31st, 1913. The child was a twin, of healthy parents; weight when born 2 kg. The first few days he was breast-fed, but when it was discovered that the mother had not sufficient milk, barley water was added to the diet. The child soon stopped suckling, and had, therefore, barley water only. He apparently thrived quite well, but about three weeks before admission to hospital he started getting weak. He did not drink much and the bowels acted more frequently, with loose evacuations. Recently he had been so weak that it was decided to bring him to the hospital. He was a most miserable little weakling. He lay perfectly still, with the arms bent and the legs drawn up. The abdomen was small, the skin dry and scaly, with extensive intertrigo on the buttocks. The fontanelle was sunken and the bones of the skull thin. The heart was weak, the pulse imperceptible, temperature 35.7° C. Both eyes showed xerophthalmia. Weight 1,640 grams.

In spite of various stimulants, such as hot baths and hot-water bottles, the temperature could not be raised above 34.3° C. He had constant signs of collapse, and died about twenty-four hours after he had entered hospital. The post-mortem examination showed bronchitis and isolated ecchymoses of the organs; otherwise the clinical examination was confirmed.

The conditions brought about by a diet consisting chiefly of carbohydrate resemble those due to chronic inanition. The store of fat and protein is drawn upon, and being weak from birth the child loses weight rapidly immediately suckling ceases. It gradually gains the appearance which is usually termed atrophic, but I prefer the term *atrophia amylogenetica* to distinguish it from the true atrophy of children, from which it differs both in origin and appearance. The treatment of the two types is also to some extent different.

If the child is a few months old, and particularly when it is strong, the excessive carbohydrate diet seems to cause quite different symptoms. If the child has been given milk from time to time, then the changes may be quite characteristic, as will be seen from the following case:

Anna J., born January 17th, 1914, entered hospital April 17th, 1914, discharged June 9th, 1914. The child had never been nursed at the breast. She was a strong baby when born, and for the first month and a half had nothing but oatmeal gruel. Later a little milk was added to the gruel, generally one part of milk to two parts of gruel. Latterly she was given biscuit diet daily, and from time to time dilute milk (half milk and half water). The child seemed to develop excellently on this diet, and increased rapidly in weight. Latterly the mother thought the child was getting too fat, and noticed that she was getting rather fretful. The bowels always acted normally.

The child looked very fat, but the subcutaneous tissues were spongy and the eyes were half closed on account of oedema which was general. The abdomen and lower extremities were very tense from the oedema. There was no ascites. The child was pale and limp. There were fissures behind the ears and intertrigo on the buttocks, otherwise the skin was normal. Weight, 5,070 grams; temperature, 36.3° C. Urine normal.

A diet of ordinary sterile milk and barley water as a basis gradually caused the oedema to disappear, and the tissues regained their normal texture. The weight at first decreased to 4,800 grams, but later the child did well and weighed 5,300 grams when discharged, although she was a good deal behind in development.

A spongy and hydraemic condition of the tissues develops, which is a direct consequence of the carbohydrate diet. If this is even partly changed the oedema disappears. In well-marked cases the children have an appearance similar to that of Bright's disease, but the urine never contains albumin or kidney elements. In the primary stage of this disease the tissue is only puffy and spongy, and this stage is the one more frequently met with.

The authors who first described this form of the disease called it hydraemic atrophy. This is, however, a misleading term, as these children do not look atrophic. It would be more to the point to call it dystrophy, as the growth is distinctly abnormal. Furthermore, the hydraemic condition is not always very marked, particularly in early cases; and the tissues may even, in a few exceptional and very serious cases, assume quite a different character.

Lydia A., born April 30th, 1915; entered hospital September 23rd, 1915; died October 2nd, 1915. The child came of a healthy family, and she was a strong baby when born. For the first month she had nothing but patent food, and the following two and a half months oatmeal gruel and semolina pudding, made with one part of milk to three parts of water; as the child got diarrhoea the mother took to patent food again, which the child had been fed on ever since. The mother declares the child was quite fit and doing well up to a fortnight ago. It then became limp, drank poorly, and the evacuations were loose.

It was a miserable, pale child, evidently suffering a good deal; it cried at the slightest touch, but no hyperaesthetic areas could be found. The child was very exhausted and cold, with bluish hands and feet. The heart was feeble, the pulse imperceptible. The state of nutrition was apparently good (weight, 3,800 grams), but that was due to the subcutaneous tissue becoming sclerotic nearly everywhere. There was no oedema. The child lay nearly always with the head retracted and the arms in the "paw position." There was pronounced hypertonicity of the muscles; the skin was perfectly dry, and its turgor nearly gone; there were occasional papular infiltrations. The conjunctivae were dry and injected, the eye itself dull. The urine showed no albumin or cells.

In spite of stimulants and breast-feeding the child did not recover. The necropsy showed purulent pneumonia, otherwise the clinical features were confirmed.

The plump appearance in this instance was not due to oedema, as in the previous case, but to general sclerotic infiltration of the subcutaneous tissues. This gave the child a peculiar mask-like appearance, and it was still more uncanny on palpation.

Although the child was much behindhand in growth and development, atrophy would hardly be the right word.

The appearance was not atrophic; she had grown to some extent, but the condition of the tissues showed that development had been abnormal. The dystrophic and atrophic forms are identical in their origin, both being due to a diet consisting chiefly of carbohydrates, particularly starch, over a long period. I therefore prefer to call these complaints "dystrophia amylogenetica," in order to distinguish them from other forms.

From my rather large and gradually accumulated experience of these regrettable diseases, it appears that it is the delicate and newly-born infants that are most susceptible to the atrophic form, and the stronger and somewhat older ones that mostly suffer from dystrophy, particularly if from time to time they have had a little milk, or milky foods, in addition to the carbohydrate diet.

The peculiar rigidity and tone of the muscles often observed show that they have become changed. This was first observed and described by Gregor, and more thoroughly later by Czerny and Keller. The pronounced cases show opisthotonos and an elastic resistance of the muscles. This was present in the first and the last of the above quoted cases. It is comparatively easy to straighten out the contracted muscles, but they relapse at once as soon as released. This hypertonicity is a serious prognostic sign, but it disappears easily and quickly if the patient recovers. As far as I have been able to observe, it is not related to infantile tetany, which it somewhat resembles.

Common to all children fed on a carbohydrate diet is their great susceptibility to all infections. These children nearly always have some infection, most often of the mucous membranes or a simple dermatitis. When serious acute infections set in they will as a rule react with an enormous loss of weight, due to the surplus water in the tissues suddenly being excreted.

The prognosis of these cases is always very serious and distinctly unfavourable when the vital parts are degenerated.

The most important point in the treatment of these children is careful nursing and the use of stimulants. Furthermore, their diet must be altered so that they obtain the substances they have been without for so long—that is, protein and fat. The best way of doing this is to give them a wet-nurse. If one is not available they must be fed on a diet the basis of which is sterile milk, diluted according to age. Care must be taken, however, not to give too large quantities at first. In particular, when giving cow's milk it is necessary to be very careful, as by taking more than can be digested the child might get chronic dyspepsia or genuine atrophy.

It is a mistake also suddenly to stop the supply of carbohydrates, and still worse to put these miserable children on a diet of water or tea, from which I have often seen the most disastrous results. When the milk diet is started the children must be given as much carbohydrate as they can digest at their respective ages. The best course to pursue is, naturally, to employ a wet-nurse at the same time, and in the most serious cases this is the only means of saving the child's life.

In these cases the faeces become not only sour and fermented, but foetid and irritating; the skin of the buttocks gets red if the soiled napkin is left in contact with the child's skin only for a short time. If the irritation is repeated many times, the skin will be affected by weeping intertrigo all over the napkin area. It is, however, not only the skin which shows the effect of the irritation of these evacuations. The mucous membranes of the intestines, particularly the large gut, reacts at first with slimy secretion, later with haemorrhage, and with brisk peristalsis. As a consequence the child is restless owing to attacks of colic and frequent foul-smelling evacuations. Gradually there ensues a typical colitis, which in many cases is very serious. I have termed this disease "colitis amylogenetica" because of its association with carbohydrate, particularly starch. It occurs in a mild form in the younger infants; only the older and stronger children show characteristic "colitis amylogenetica," and my experience indicates that it is more frequent amongst children in the country. The reason why it is so frequent must, I think, be sought in the prolonged and ill-advised use of the so-called constipating diet.* Another cause of its frequency is no doubt to be found in the disinclination of

many doctors to administer milk and milk preparations to children suffering from diarrhoea, though a milk diet is undoubtedly in most cases the best treatment for chronic infantile diarrhoea. Even in the case of infectious toxic cholera infantum a milk and water diet is much to be preferred to barley or oatmeal water.

I have seen quite a number of children wrongly treated by means of a long-continued constipating diet, and many of them have been in a most miserable condition, particularly when they have been simultaneously loaded with bismuth and silver nitrate, combined with enemas of the latter. I have even seen children become scorbutic under this treatment.

The evacuations may remain watery in spite of the milk diet, which contains only trifling quantities of carbohydrates. It may in these cases be necessary to give the intestines a complete rest, by giving the child for one or, at the most, two days, boiled water only, or weak tea, without milk or sugar, but with saccharine if necessary. On the second or third day milk diet may be started (one part of milk and two parts of water); and at the same time may be given increasing quantities of protein milk. It is not easily fermentable, and therefore is most suitable for the treatment of these cases of chronic colitis. It is made as follows:

To one litre of rich milk is added one teaspoonful of Hansen's liquid rennet. The milk is then placed in a water bath at a temperature of 42° C. to 43° C. for half an hour; it is poured through gauze, when the coagulum is collected and the whey drained off. The casein is now rubbed through a very fine sieve, and this is repeated ten times. The first few times the casein is mixed with half a litre of butter-milk, and later with an equal quantity of water. After mixing, the liquid should pass readily through the sieve. The protein milk is now boiled with continuous stirring and the desired quantity of sugar added (usually 30 grams of castor sugar). After the addition of sugar the milk is quickly cooled with continuous stirring, and then once more passed through the sieve. The prepared protein milk must be kept in a cool place.

Apart from the diet, I administer preparations containing tannin, preferably acorn cocoa in milk. If it does not agree I use albumin tannate, which has the advantage over metallic salts of being non-toxic. It can be safely given in doses of a couple of grams a day for a long time, even to quite young children. In some cases bismuth salts will give better results, the best being bismuth subsalicylate. If, however, the motions are not stained black, the drug may be stopped, as it is having no effect. As bismuth is a poison, it should never be administered for a long period, and it ought to be a fixed rule never to give bismuth, or preparations containing tannin, to a child when on a diet of water or tea. These constipating drugs will only give satisfactory results when taken with milk and milky or other foods.

The oatmeal and barley-water diet will generally be sufficient in cases of ordinary acute dyspepsia, particularly in those frequent cases where the diarrhoea is due to overfeeding with milk and milky foods, causing a pronounced protein decomposition in the intestines. Here it is essential that the barley water should be thin and never sweetened with more than 2 per cent. of cane sugar. Such a diet is meant to be a starvation diet, intended to give the intestines a rest. In the case of an ordinary diarrhoea, the bowels will act normally after a few days of such a constipating diet, and the children may then gradually be given their usual food.

By the term "milk," as used above, is understood good fresh milk which has just been brought to the boil. Raw milk might have just the opposite effect, and this is the reason why children suffering from these intestinal complaints should always be given boiled milk.

At the annual meeting of the Society for the Prevention of Hydrophobia, held at the Farmers' Club on February 1st, Major John Penberthy, ex-president of the Royal College of Veterinary Surgeons, was elected chairman of the committee. The annual report stated that experience of the outbreaks of rabies in this country during the past two years had confirmed the society in its policy of advocating universal muzzling of dogs for a limited period. The futility of attempts to stamp out rabies by muzzling dogs in limited areas has again, it is stated, been demonstrated by recent experience. Mr. F. W. Fletcher, F.C.S., Windsmill, Enfield, Middlesex, has been elected honorary secretary in the room of the late Mr. Frank Karslake, one of the founders of the society.

* During this treatment the child is often given only arrowroot and water, or barley water.