and articulation of the jaw free, and does not produce marked swelling. Such a patient is generally dead under the year. (2) The growth following the earlier stage may be of a *hard, infiltrating type*, which produces no ulceration until very late, and even then of a much less irregular, fungating and malodorous type than the preceding. The swelling is marked, either because the growth is in the cheek and when gripped between the fingers suggests a fibrous tumour or early gummatous mass, the skin looks healthy, and the mucous membrane even may only show the thickened white character, or the swelling is marked because the jaw has become the seat of a similar growth and is pushing out the healthy normal cheek. This form usually grows backwards, tends to involve the articulation, and early limits considerably the movements of the jaw, or even entirely prevents the separation of the teeth. Glands are more slowly involved, and by no means so extensively as in the former type.

Treatment depends on the stage of the growth. It is the treatment of malignant disease on general principles, with perhaps a few variations. For example, in early cheek growth, where the skin is not involved, it makes a pretty little operation to turn a flap of healthy skin and subcutaneous tissue up and down from the angle of the mouth, definitely feel the edges of the malignant growth with a finger inside the mouth and the thumb outside, and finally run round the involved mucous membrane with a knife or scissors, and remove the mass now held in position only by the mucous membrane; no throat sponging is necessary; a continuous suture with a friar's balsam dressing or Michel's clamps closes the wound and arrests haemorrhage. Such cases seldom recur; the submaxillary triangle is of course also cleared. I had much more recurrence when I used to try and remove these from inside, owing to the bleeding preventing clear vision of suspicious mucous membrane. In advanced cases I have learned not to dread the fungating and alarming-looking growths to the front, so much as the less dreadful-looking, hard, dry swellings reaching up to the lobule of the ear, and involving the articulation, and I am now very chary of advising operation when I find the commissure at all involved, for the internal maxillary is sometimes divided where involved in the growth, and gives one a nasty couple of minutes, and the cutting off of the involved styloid process, scraping the glenoid fossa almost up to the jugular foramen, and working forward to the foramen spinosum, is not satisfactory.

The Connexion of Betel Chewing with Cancer of the Mouth.

In Travancore, and I imagine in most parts of Southern India, the habit is almost universal, and indulged in from childhood. The materials used are areca nut, betel leaf, slaked lime, and tobacco leaf.

The *areca nut* is the fruit of a palm tree, and the kernel, which is the part used, is about the size of a small almond, though more oval in shape. It has a pungent odour if fresh, an astringent taste, and contains starch, sugar, proteids, a large amount of fibrous material, and some astringent substance.

The *betel leaf* is the ovate leaf of a creeper, bright green in colour, and when chewed alone causes marked salivation, and a temporary sensation of numbness after a hot feeling.

The *lime* is usually prepared by burning seashells, though sometimes from stones.

The *tobacco leaves* are prepared with us (though not so everywhere, I understand) by a prolonged soaking in a saturated solution of a sugary substance known as "jaggery," which is prepared from the juice of the fruit stalk of the Palmyra palm.

The method of chewing in Travancore is usually to take a few bits of areca nut, and placing them in the mouth to chew for half a minute, and then, smearing the betel leaf with slaked lime, to add that. This is said to produce a pleasant sweet taste, and the increased saliva becomes bright red in colour; some swallow this, others spit it out. In about five minutes a portion of the prepared tobacco leaf is added, and the whole is chewed into a bolus, and located in the sulcus between the cheek and the lower jaw. Some keep it there for about a quarter of an hour until it has no taste, and then eject it, while others keep it in for a long time, even up to six hours. If the proportion of lime be increased, there is marked burning sensation and local anaesthesia lasting for several hours. If the tobacco be increased, there are all the symptoms of nicotine poisoning. Many men with their betel can work hard all day without any food.

SUMMARY.

1. The younger age incidence of cancer in Travancore is suggestive of some definite cause early in life.
2. Frequency of cancer of the buccal cavity and absence of it in the rest of the alimentary canal is suggestive of a local cause for the former, but absence of digestive causes in the latter.
3. The inveterate habit of "betel chewing" from childhood is suggestive of the cause, either by mechanical irritation or a medium suitable for the growth of a possible cancer germ.

BIBLIOGRAPHY.

Imperial Cancer Research Fund Report, I, No. 2, 1905. Guthrie Lecture on Some Recent Research Work on Cancer, Monckton Copeman, *Practitioner*, August, 1907. Cheatele on Spread of Cancer in Upper and Lower Lip, *ibid.* Address on Surgery, Butlin, *BRITISH MEDICAL JOURNAL*, August 3rd, 1907. Removal of Contents of Anterior Triangle of Neck in Malignant Disease of the Tongue, *ibid.*, February 11th, 1905.

A CASE OF POST-ANAESTHETIC ACETONURIA, WITH DELAYED EXCRETION OF ACETONE, AFTER CHILD LABOUR.

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THE signs and symptoms in the following case appear to be very similar to those occurring in the cases of post-anaesthetic acetonuria with delayed chloroform poisoning recorded by Beesly.¹ The treatment which he advocated was followed.

The case is that of a primipara, aged 28, with a previous history of occasional attacks of dyspepsia and constipation, and no previous chloroform anaesthesia. A year ago an examination of the liver revealed the upper border to be at the fifth rib in the mammary line, the lower border two fingerbreadths' distance below the costal margin in the same line.

The pregnancy was uneventful; on three occasions the urine showed an average result of specific gravity 1015, acid, no albumen, sugar, nor casts.

The labour proved to be protracted and abnormal, owing to the premature rupture of the membranes, and escape of the liquor amnii, during the early part of the first stage (approximately of thirty hours' duration). The bladder and rectum were carefully attended to throughout the labour. During the second stage (from Saturday, 10 p.m., to Sunday, May 3rd, 1.30 a.m.) slight chloroform anaesthesia, starting at 11 p.m., was maintained during the pains. Eventually the child was delivered by forceps, the perineum being torn; the tear did not extend into the rectum.

The third stage lasted for an hour and a half. The placenta, which was entirely adherent, had to be removed by the gloved hand under chloroform; a hot douche was then given, and ergotin 1/8 grain injected hypodermically into the buttock.

The condition of the patient proving satisfactory, full anaesthesia was again maintained and the perineum repaired.

Five and a half ounces of chloroform were used, given on a Schimmelbusch mask, which allows of free evaporation.

The periods of anaesthesia during the second and third stages and subsequently, gave an approximate total of four hours.

On Sunday, May 3rd, at 9 a.m., the patient had slept almost continuously from the time when chloroform was withheld; the uterus was well contracted; the pulse was 90, and the temperature 99° F.

The urine was drawn off by catheter. It was of a dark amber colour, with a pungent aromatic odour.

The patient took nourishment well during the day; she complained of slight headache and drowsiness in the evening. Fifteen ounces of urine were obtained by catheter.

On May 4th, after a fair night, she said she "felt well and ready for food." At 9 a.m. the pulse was 100 and the temperature 99° F. There was slight general jaundice, most marked on the malar prominences and the sides of the nose. The skin was dry. The liver dullness was found on percussion to be unchanged.

The uterus was well contracted, the lochial discharge not offensive, and the perineal wound healthy. The lochial discharges and perineal wound progressed to a favourable issue, and no septic changes were noted at any time.

Fourteen ounces of urine were obtained by catheter (after this it was passed naturally); colour, dark amber; specific gravity 1026; highly acid, no albumen nor sugar; no casts were found, but uric acid crystals and amorphous urates.

At 3 p.m. she was restless and drowsy, complaining of hiccough, thirst, frontal headache, and nausea, though there was no vomiting. Pulse 105, temperature 99.4° F., respirations 30. Calomel gr. v was ordered—gr. j every hour.

By 10 p.m. her expression was anxious. She could not sleep; the hiccough was relieved by 3j of champagne every hour. She frequently asked for drink, but only took nourishment after persuasion. Pulse, 110; temperature, 99.4°; respirations, 34. She passed so restless a night that the nurse tied her thighs together to protect the perineal stitches.

At 9 a.m. on May 5th her pulse was 114, regular, of small volume; temperature, 100°; respirations, 32. She complained of drowsiness and of a sweet taste in her mouth. The jaundice was of a deeper colour, especially marked on the face and in the conjunctivae. Her expression was anxious, her pupils dilated; the tongue furred, its tip being denuded of epithelium; the breath had an ethereal odour, with a smell of apples; no perspiration was noted.

She was encouraged to drink water, milk, and barley-water; elimination by the skin was attempted by blankets and hot bottles. Tinct. digital. mv was ordered every four hours, and sod. bicarb. gr. xxx, aq. menth. pip. ad 3j every two hours. The champagne was withheld, whisky (3ss), puro (3j) in water being substituted every four hours. At 3 p.m. the bowels acted freely; after enemata of hot water, about 3x of sod. bicarb. solution (3ij to Oj hot water) were left in the bowel. At 10 p.m. she was delirious, the acetone smell being strong in the breath. Pulse, 120; temperature, 100.4°; respirations, 39. Thirty-five ounces of urine were collected since the previous midnight; specific gravity, 1028, brown-amber colour, markedly acid; no albumen; acetone and diacetic acid present. The deposit showed uric acid and urates, and some crystals like tyrosin, but too small.

At 9 a.m. on May 6th she had passed a restless night, with marked delirium; vomiting began at 11 p.m., consisting of bile, mucus, and the food taken.

She lay tossing from side to side, moaning and breathing rapidly; she would greedily take a drink, and in a short time vomit it up, with no apparent effort.

The pupils were widely dilated, the breath charged with acetone; the skin was dry, the jaundice being unchanged. Pulse 127, temperature 100.8°, respirations 46.

Copious enemata were ordered every six hours, with as much sod. bicarb. solution to be left in the bowel as possible; during this procedure great care was taken of the perineal wound. A mixture containing sod. bicarb. gr. lx, sod. citrat. gr. xx, was ordered every two hours.

At first everything was vomited up, but either by repeating the dose or by making the patient drink freely of water, which usually resulted in her vomiting, the soda mixture was retained. In the afternoon the vomiting occurred about once every two hours.

At 6 p.m. she could retain her medicine, and also teaspoonfuls of puro and water.

At 10 p.m. she had vomited once since 6 p.m. She was rational, but had very confused ideas as to what had happened. Calomel (gr. iij) was ordered. Pulse 115, temperature 100°, respirations 40. At midnight she was perspiring freely, and inclined to sleep. Fifty ounces of urine were collected, specific gravity 1026, acid; acetone present. A few uric acid crystals and abundant urates were deposited.

On May 7th she was much improved, there had been no vomiting, and she had taken nourishment well during the night.

At 9 a.m. her pulse was 100, of a larger volume, temperature 98.6°; the jaundice was not so marked. The pupils were of normal size, and no odour of acetone was noted in the breath.

The sod. bicarb. was given every four hours; the enemata were stopped except when the bowels moved; the whisky and digitalis were discontinued.

At night her pulse was 90, temperature normal. She had taken nourishment well during the day and had not vomited; 3c of urine were collected of a straw colour, specific gravity 1018, moderately acid, acetone present and a deposit of urates.

May 8th, her condition showed further improvement. The jaundice had faded markedly. The sod. bicarb. was reduced to gr. xl every four hours, without the sodium citrate; 3lxxx of urine were collected, still acid, and containing acetone.

From this she steadily progressed to recovery; the urine was acid and contained acetone till May 10th, when it was alkaline with no acetone. The sod. bicarb. was discontinued on that date.

On May 18th the liver dullness was found to be unchanged, and the jaundice in the conjunctivae, which had persisted to that date, to have disappeared.

In this case there was no apparent sepsis, nor was there any antecedent disease of the liver or kidneys which could be ascertained.

Anning² published a case in which the patient, a primipara, with no antecedent kidney disease, had violent symptoms of poisoning after labour in which chloroform was the anaesthetic used. His case differs in that the symptoms appeared with greater rapidity, the pulse-rate being more frequent, the delirium more marked, and the vomiting being haemorrhagic—all differences of degree only. The material difference being that the liver dullness showed diminution in size as recorded by percussion, which was almost normal in ten days. The cause suggested was acute yellow atrophy of the liver.

Now it appears that acute yellow atrophy of the liver and delayed chloroform poisoning may produce similar symptoms; but while the former is a rare disease, symptoms of the latter are not, although admittedly rare in cases of parturition. Therefore I venture to express the opinion that the symptoms of poisoning in my case were directly attributable to a delayed excretion of acetone,

resulting from delayed chloroform poisoning; and that Anning's case is more easily explained by such an assumption than by that of acute yellow atrophy of the liver.

That symptoms of delayed chloroform poisoning should be recognized and treated, the cause not being attributed to delayed shock or sepsis, unless definite signs of either are evident, is expressed by Stiles and MacDonald.³

REFERENCES.

¹ BRITISH MEDICAL JOURNAL, May 19th, 1906. ² *Lancet*, October 6th, 1906. ³ *Scot. Med. and Surg. Journ.*, August, 1904.

Memoranda :

MEDICAL, SURGICAL, OBSTETRICAL.

RUBELLA.

IN the JOURNAL of October 31st Dr. Arnold describes an outbreak of rubella, and his observations seem to me of considerable interest, because of the evidence he adduces in favour of the specific nature of the disease—though he himself does not think such proof necessary—and because of the approximate incubation period, symptomatology, and points of diagnostic value involved. I agree with him that the opportunities for studying the disease are not frequent, chiefly because it runs such a mild course, and even when seen by the medical attendant is not often diagnosed. Indeed there seems still to be so much confusion with respect to it that it is wise to record individual experiences. By so doing we may hope often to save patients from those perils that an error in diagnosis involves, and likewise to rid the State of burden and expense.

Some years ago a number of cases came under my observation, and I personally attended many of these. One series of cases was detailed in a paper I read at the Liverpool Medical Institution. In nearly all the initial symptoms were frontal headache, nausea, and malaise. The "pimply red rash" appeared within a few hours—in every case within twenty-four hours—on the back, between the shoulders, behind the ears, and on the forehead, and subsequently spread over other portions of the body. It then gradually faded, lasting altogether from three to seven days. In a few cases no symptoms were complained of before the rash appeared. The rash nearly always repeated itself, first taking the form of minute papules, disappearing on pressure; subsequently these papules quickly coalescing to produce irregularly shaped patches of a darker colour, without any tendency to assume the crescentic shape. It was particularly confluent on the face and wrists. It was copious in a direct ratio to the severity of the general symptoms, and desquamation only followed in the more severe cases. I have never seen the mucous membrane of the mouth invaded by the rash, though the fauces early became red and swollen, and the tonsils enlarged. Koplik's spots have never been seen on the mucous membrane.

As regards the temperature, I am rather surprised at Dr. Arnold's figures. He states that in 17 of his 19 cases it was normal. I have never met with a case in which the temperature during the entire attack remained normal, and my experience in this respect agrees with most observers; indeed, his description hardly agrees with Dr. E. W. Goodall's as regards this point. The rise in temperature in rubella occurs very early—within twelve hours of the onset—and rarely continues beyond twenty-four hours, and so I can understand that in some cases it could not have been noted, and pyrexia, therefore, presumed to be absent altogether. In some of my cases the temperature on the first day was 102°; the pulse, 130; and there was no bronchial trouble whatever. The cervical glands along the posterior border of the sterno-mastoid were enlarged and tender, including the suboccipital. Pains in the legs and itching of the skin were troublesome symptoms in some.

I have found the conjunctivae injected, with lacrymation, and marked photophobia in a small percentage of cases.

I have never seen a case in which such complications as albuminuria, nephritis, or enlargement of the spleen have occurred, but I am aware that these have occasionally been noted by some writers on the subject.

London, W.

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