

von BOKAY (J.)

RETROPHARYNGEAL ABSCESS
AND
RETROPHARYNGEAL ADENITIS

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Director of the Stefanie-Kinderspital, Budapest.

Translated from the French with the special
sanction of the author, by

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Aural Surgeon to the Carney Hospital; Assistant Aural
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RETROPHARYNGEAL ABSCESS AND RETRO- PHARYNGEAL ADENITIS.

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History.—Retropharyngeal abscess is still frequently designated by authors under the name of "phlegmonous angina" (Gautier, 1869); "suppurating retropharyngeal adenitis" (Roustan, 1869); "circumscribed peripharyngeal phlegmon" and "retro and latero-pharyngeal adénophlegmon" (Ruault, 1892).

The physicians of antiquity and of the middle ages (Hippocrates, Ambrose Paré) were acquainted with retropharyngeal abscesses. Although writers of the commencement of our century have left us a certain number of clinical observations on this affection, yet the chief merit of having made retropharyngeal abscess a matter of exhaustive study belongs to C. Fleming (1), 1840, a physician in Dublin. The works of Bokay Senior (2), who applied himself to throwing light upon the nature of these abscesses, and who left a very conscientious monograph on the symptomatology and treatment, appeared in 1858 and in 1876. Among other works published before 1880, may be pointed out those of Gillette (3), 1869; of Roustan (4), 1869; of Gautier (5), 1869, and of Schmitz (6), 1874, all of which contain a very complete bibliographical study of this subject.

1. *Dubl. Journ. of Med. Sciences*, 1840-1850.
2. *Bokay Sen. Jahrb. f. Kinderheilk*, 1858 and 1876.
3. *Gillette. Des abcès rétropharyngiens idiopathiques*, Paris, 1867.
4. *Roustan. Des abcès rétropharyngiens idiopath, et de Padénite suppurée rétro-pharyng. Thèse de Paris*, 1869.
5. *Gautier. Des abcès rétropharyng. idiopath, ou de l'angine phlegmoneuse*, Genève et Bâle, 1869.
6. *Schmitz. Jahrb. f. Kinderheilk*, 1875.

Pathogeny and Etiology.—In the classification of retropharyngeal abscesses, we distinguish the following groups:

1. Abscesses called idiopathic.
2. Secondary abscesses due to congestion arising from inflammation of the cervical vertebræ, or from the migration of pus from a superficial cervical adenitis.
3. Septic or metastatic abscesses.
4. Retropharyngeal abscesses of traumatic origin.

Although idiopathic abscesses are observed comparatively often, it may be said of secondary abscesses that they are rare, and of metastatic or traumatic abscesses that they are exceptional.

From 1854 to 1893, that is to say, in the space of 39 years, I have had under my care, in the hospital, 614 retropharyngeal abscesses, including the adenites. This number was observed in a total of 289,176 sick children; retropharyngeal abscess, including retropharyngeal adenitis, was observed then in 0.2 per cent of the patients who entered the hospital. (In the statistics of Neumann (1), of Berlin, retropharyngeal abscesses for 0.37 per cent of the total number of diseases.)

In the study we are about to make, we shall have in view principally abscesses called idiopathic, and the retropharyngeal adenitis connected with them.

In 1876, Bokay Sr. expressed the opinion that *in every case* retropharyngeal abscess springs from a retropharyngeal adenitis, and that, in consequence, the inflammation of the lymphatic glands should be considered the preliminary stage of the idiopathic abscess. This source of idiopathic abscesses had already been admitted by Gillette, Gautier, Roustan, König and Schmitz, but these authors accepted the lymphadenitis rôle for certain cases only, while Bokay Sr., on the contrary, held that this etiology is valid for *every case*. According to him, it is the suppuration of the glands indicated by anatomists under the name of "deep lymphatic glands of the face" (gland. lymph. faciales profundæ) and "superior deep lymphatic glands of the neck" (gland. cervicales profundæ superiores), that gives birth to the retropharyngeal abscess; according to Henle, these glands are particularly abundant in children, and decrease later with age.

Clinical experience teaches us that retropharyngeal abscesses are as common among boys as among girls. With regard to age, retropharyngeal abscess and retropharyngeal adenitis are specially

1. Arch. f. Kinderheilk, Vol. XI.

frequent between 2 months and 4 years; later, they are quite exceptional. Between 2 months and 4 years, the largest number of cases fall to the 4th, 5th, 6th, 7th, 8th and 12th months. These abscesses seem to appear oftener during winter, spring and autumn, than during the months of June, July and August, when they are much less common.

Authors are at variance as to the etiologic rôle played by the diseases called constitutional (scrofula, rachitis). Although Schmitz, Henoeh (2), and, among modern writers, Neumann, do not think that the constitutional affections favor the development of retropharyngeal abscesses, Bokay Sr., Koths (3) and Baginsky (4), on the other hand, admit the existence of a close causal affinity between the constitutional maladies and adenitis or idiopathic retropharyngeal abscess. In reviewing 187 cases, personally observed in a hospital, I find in accordance with this opinion of Bökay Sr., a history of the constitutional maladies in a large number of cases (32 rachitic and 43 scrofulous children), without speaking of the fact that in a large number of other observations insufficient general development, a bad condition of general nutrition, and a feeble constitution are often noted, so that the number of cases where the child presented a good state of general nutrition and satisfactory development is quite trifling.

Personally, I know of only one case in which the etiologic rôle of tuberculosis might be incriminated. In this case, observed in 1881, the child succumbed to a tubercular meningitis of the base about fifteen days after the opening of an idiopathic retropharyngeal abscess. As to the question of determining to what extent the tubercle bacillus is involved in the development of these abscesses, primitive or secondary, it is difficult to reply with precision on account of the very small number of facts which we possess.

The etiologic rôle of syphilis was pointed out in 1864 by Verneuil; König (1) mentions it among the occasional causes. Until 1876, Bökay Sr. had not seen a single syphilitic case among his observations, but in 1881 he (2) reports two cases of syphilitic origin under his charge in the hospital. In my personal

2. E. Henoeh. Vorlesungen über Kinderkrankh. Berlin, 1892.

3. O. Koths. Gerhardt's Hdb. f. Kinderkrankh. Bd. IV.

4. A. Baginsky. Lehrb. d. Kinderkrapkh. Berlin, 1892.

1. König. Pitha-Billroth Handb. d. allg. u. spec. Chir. 111 Bd. 1 Abth. 4 Heft.

2. Alexy-Bokay Sen. Jahrb. f. Kinderheilk, 1880.

observations, I found eight syphilitic children treated six times for simple inflammatory adenitis, and twice for suppurating retropharyngeal abscess.

The acute infectious maladies are the immediate cause less often than is generally supposed. The facts collated by Gautier, by Schmitz, and by Bökay Sr., as well as my personal cases, prove this sufficiently. To show how rare it is to see the acute infectious maladies, and especially the eruptive fevers, intervene as etiologic factor, suffice it to say that in my collective cases, before the development of retropharyngeal suppuration, scarlatina was observed only fourteen times, rubeola once, erysipelas twice, pertussis twice, parotitis once. I wish to particularly emphasize the fact that, since the existence of the hospital, and in spite of the considerable number of diphtheria patients who come here every year, only one case of retropharyngeal abscess as a sequence of laryngeal diphtheria has been seen; this case was observed during the past year.

By their afferent vessels, the post-pharyngeal lymphatic glands are brought into communication with the bucco-pharyngeal cavity, the nasal cavities, the ear, in a word, with all the cranial cavities, a circumstance which enables us to comprehend how disease of these cavities may affect the condition of the lymphatic glands situated behind the pharynx.

Schmitz has attributed a special etiologic importance to nasal catarrh and to inflammation of the pharynx, Weil to acute suppurative inflammations of the middle ear, Lewandowski (1) to rhinitis. Among etiologic causes, Bökay Sr. allowed a considerable place to febrile affections of the mouth, the pharynx, the nasal cavities, and of the middle ear. Personal experience confirms the etiologic value of otitis media, stomatitis, rhinitis and of acute pharyngitis, and leads to the belief that the frequency of the bucco-pharyngeal affections among children explains why idiopathic retropharyngeal abscesses are observed oftener among them than among adults and more frequently during autumn, winter and spring than in summer.

If then, we surround with neighbors the etiology of retropharyngeal abscesses, we may ask: Up to what point is one authorized today to designate them by the name "idiopathic"? (Kormann, in 1877, protested against this term). Bökay Sr., in 1876, retained the term "idiopathic" for the purpose of sepa-

1. Lewandowsky. Berlin, klin. Wochenschr, 1882. No. 6.

rating these abscesses from the secondary suppurations; I think, however, that, without offending against the opinions of Bokay Sr., one may abandon the term "idiopathic" and designate this affection under the name of retropharyngeal abscesses from retropharyngeal lymphadenitis. This definition would have the advantage of separating them from the secondary abscesses, metastatic and traumatic, and of permitting at the same time definite etiologic knowledge.

I must be brief on the etiology of metastatic and secondary abscesses.

Traumatic abscesses are produced as a sequence of the deglutition of foreign bodies, through mechanical action, and appear in the form of a diffuse inflammation of the connective tissue. Among hospital-treated retropharyngeal abscesses, I have observed only one case of this sort. The foreign body, a metallic pin, was swallowed and by its pointed extremity was fastened in the lower part of the lateral wall of the pharynx. Although the pin could have been extracted, the child died three days after the accident.

Authors who have made bacteriologic examinations of the pus of retropharyngeal abscesses are not numerous. The researches of H. Koplik (2), New York, 1894, who studied bacteriologically a large number of acute retropharyngeal abscesses, can be summarized as follows: Koplik found in every case streptococci which developed upon the nutritive media under the form of a very abundant pure culture. In one case only, the streptococcus was associated with the bacillus lactis aërogenes, the latter coming probably from the mouth. Among the streptococci which he isolated, Koplik distinguishes four varieties: two short and two long. Short streptococcus A. of the pharynx formed little chains of 6, 8, 20 cocci, the diameter of each measuring 0.5 m. The chains of short streptococcus B. contain 20 to 40 cocci, each with a diameter of 0.7 m. Long streptococcus A., of the pharynx, formed very long chains, the cocci of which they were composed varying in diameter between 0.6 and 0.8 m. Long streptococcus B. appeared in extremely long interminable chains; each of the cocci which composed the chains had a diameter of 0.4 to 0.5 m. and seemed to divide transversely. These four varieties all colored well with Loeffler blue and by Gram's method.

In the adenitis of the neck, called idiopathic, which frequently

accompanies idiopathic retropharyngeal abscesses, Neumann has detected the presence of *streptococcus pyogenes* and of staphylococcus.

Pathological Anatomy.—We have already briefly described the anatomical situation of the post-pharyngeal lymphatic glands. Idiopathic abscesses, which arise from suppuration of these glands, develop in the post-visceral spaces, and, following their extension, contract the isthmus of the fauces more or less. When they are deeply situated and present a considerable size, they may push the larynx and trachea forward or sideways, or even contract the latter beneath the cricoid cartilage (tracheal stenosis). In a feeble nursing, Bokay Sr. saw the abscess rupture into the larynx, and thus lead to the death of the child.

In abscesses from congestion, the pus may pass under the cricoid cartilage, follow the inferior thyroid artery, penetrate the vascular spaces and form on a level with the external or internal edge of the sterno-mastoid a collection which, left to itself, may rupture outwardly. The pus from secondary retropharyngeal abscesses consecutive upon inflammation of the vertebræ may follow the length of the loose connective tissue, which is found between the œsophagus and the vertebral column, penetrate the posterior mediastinum, and, in passing under the transverse portion of the aorta, provoke a suppuration in the previsceral space; the suppuration may not be arrested there, but may invade the pericardium or the pleural cavity and produce a pericarditis or a purulent or ichorous pleurisy.

It is much more rare to see the purulent collection leave the retrovisceral space, traverse the length of the bucco-pharyngeal under the buccal aponeurosis, and appear in the parotid region to rupture on a level with the cheek or at the side of the maxillary. Bokay Sr. has seen only a few cases where the pus of the idiopathic abscess followed this path.

Equally rare is the formation of several abscesses in the pharynx. Among my hospital patients, I have observed this contingency only in a few isolated cases. Abscesses from congestion, particularly those which are consecutive upon inflammation of the vertebral column, may erode the vertebral artery and thus lead to a fatal hemorrhage. In 1881, Szekeres published the case of a four-year-old child who entered the Children's Hospital in Budapest and died with symptoms of pulmonary inflammation complicated with hæmatemesis; on autopsy was found a retropharyngeal

abscess which had perforated the œsophagus and the common carotid. Traumatic abscesses which develop consecutively upon the deglutition of foreign bodies may accompany extensive subcutaneous emphysema (Koths).

If retropharyngeal abscesses are not opened, death generally follows from suffocation caused, for the most part, by the penetration into the respiratory tract of pus which has burrowed through some part of its walls. In such isolated cases, the fatal termination is directly induced by ischæmia or by pneumonia (pneumonia aspirativa).

Symptoms and Progress.—The time in which a retropharyngeal abscess develops varies greatly. Bokay Sr. has seen nine abscesses form in two days, seven in three days, three in four days, five in five days, three in six days, thirteen in eight days, and twenty-five between nine and fourteen days. In 13 cases the formation of the abscess continued three weeks, in 10 cases four weeks, in 1 case five weeks, in 3 cases six weeks, in 2 cases eight weeks, in 1 case more than eight weeks. These figures justify the division of idiopathic abscesses into acute, subacute and chronic.

The first symptom by which the affection is made manifest and which remains predominant is the *difficulty of deglutition*. While later, when the abscess has completely or almost completely developed, the dysphagia is explained by the presence of a tumor and is, therefore, of the mechanical order, at the outset of the malady, difficulty of deglutition arises for the most part from the pain caused by the inflammation. Infants do not nurse easily. They seize the breast greedily, but push it back after one or two swallows of milk and begin to cry. Among larger children, the painful dysphagia manifests itself in particular when they swallow solid food or irritating drinks. In proportion as the abscess develops, deglutition becomes progressively more and more painful, and the dysphagia attains its maximum when the abscess is fully formed. In very extensive subacute or chronic abscesses, the child may remain for some days without taking food (liquids pass with equal difficulty and are in the main rejected through the nose and mouth) and may fall into a state of extreme weakness from this almost absolute inanition. In some cases the patient may diminish the pain which accompanies deglutition, by assuming a certain position; in other cases one may see an extensive abscess hardly obstruct deglutition especially when the purulent

collection in place of bulging is patulous and scarcely contracts the pharynx.

The dimensions of the naso-pharyngeal cavity vary with the age; the younger the child, therefore, the more noticeable will be the narrowing of this cavity by the abscess, and the more pronounced will be the dysphagia.

Besides dysphagia, should be noted as an equally important symptom, alteration of the voice, which acquires a nasal intonation, and, in crying or speaking, the timbre is obscured. This modification of the tonality is so characteristic that on hearing this nasal voice among children a post-pharyngeal process should immediately be suspected and an examination of the pharynx made. With the onset of post-pharyngeal adenitis, the voice is only slightly altered, but in proportion as the process progresses and the abscess develops, the nasal character of the voice becomes more and more apparent. When the collection acquires considerable bulk beneath the posterior wall of the pharynx, we sometimes find, besides this particular tonality, a rattling noise accompanying the voice.

The *respiration* in retropharyngeal adenitis and idiopathic abscesses is always embarrassed, and this difficulty appears with the characteristics of a stenosis of the upper air passages. Careful study of the respiration may satisfy us as to the site and extension of the process. When, for instance, the adenitis or the abscess occupies the upper part of the pharynx, it is principally the nasal respiration which is affected, and often to such a point that the child breathes only through the mouth, which is constantly open, and its rest is, therefore, as much disturbed during the day as it is at night. When the adenitis or the abscess is more deeply situated, or when the inflammatory process has descended as far as the epiglottis or even lower, we find, in spite of the integrity of the nasal respiration, very severe respiratory disturbance, the intensity of which may recall that of the stenosis of croup. When the abscess is of great volume, the breathing is stertorous, particularly when the child is in the horizontal position. In sleep, moreover, the respiration is at times arrested and the patient is continually under the menace of death from suffocation. In general, the obstacle to respiration and respiratory troubles are more severe in proportion as the child is younger and the progress of the abscess more rapid. An accumulation of mucus in the bucco-pharyngeal cavity contributes in making the respiration still more difficult, as it is then accompanied by loud râles and moans.

Among the symptoms of post-pharyngeal adenitis and abscess, the *pathological position of the head* merits special attention. In acute cases this symptom exists from the outset; in subacute and chronic cases, it appears only at a later stage of the malady. The child holds its head rigid, a little inclined to the side, and, if the submaxillary region is carefully explored, a quite deep-seated ganglionic tumefaction of the size of a kidney-bean, a nut, or even of still larger dimensions will be found on a level with the angle of the jaw. Ordinarily this ganglionic turgescence occurs on the same side as the abscess, more rarely it is bilateral. In connection with this deep adenitis is sometimes found an enlargement of the superficial cervical glands. Sometimes these tumefied glands are softened and suppurating. In proportion as the inflammation augments, the submaxillary region is seen to grow round, to become full and in certain cases the protuberance formed there becomes appreciable to the least experienced eye. In these cases, external palpation confirms the existence of a deep fluctuation. Thanks to the bulging which it makes, the neck appears swollen and the head is impeded in its movements. In an advanced stage of the malady, the rigid, immovable position of the head is still more striking, and in grave cases, which are far from being rare, we see the child entirely motionless, with its head bent back and carefully guarding itself from the slightest movement.

In local examination, inspection and digital exploration of the pharynx have a special importance. But, while inspection alone may often prove insufficient (in case of deep-seated abscess or inflammation) to establish a precise diagnosis, digital exploration and palpation of the pharynx lead us in every case to recognize the nature of the morbid process. Therefore, in this mode of exploration, palpation has a greater value than inspection, and one may say that those who content themselves with inspection alone, without having recourse to palpation, run the risk of ignoring the existence of retropharyngeal adenitis or abscess, and of interpreting in an erroneous manner the symptoms observed (difficult respiration).

In examining the patient, exploration of the throat should never be deferred, as in this way, one may satisfy himself as to the condition of the various organs of the bucco-pharyngeal cavity. When the post-pharyngeal process occupies the upper parts of the pharynx, one may see by depressing the back of the tongue a more or less voluminous local tumefaction on the lateral parts of the pos-

terior wall of the pharynx, behind the tonsil. The swelling is characterized by a dull red color from the injection of the mucosa. When the abscess is fully formed, the surface of the tumor, if one is found, has a paler color. At the place where the anterior wall of the abscess has become thinner and is ready to rupture, from its transparency, the yellowish color of the pus may be seen. In these cases, inspection admits of deciding at the same time upon the place where the incision ought to take effect.

Among little children, with whom one is not impeded by the presence of teeth, digital exploration encounters no difficulties. After extending the child's jaws, it is easy to introduce the index finger into the mouth and to push it,—passing quickly over the back of the tongue,—as far as the posterior wall of the pharynx. The introduction of the finger should be made as softly and as rapidly as possible, as in this way an attack of suffocation or of vomiting on the part of the child may be avoided. If one exploration alone does not afford sufficiently exact intelligence, a second examination may be made after the lapse of some moments.

With larger children who already have their teeth, the molars in particular, the best way of penetrating the mouth is to pass the finger along the internal surface of the cheeks and behind the molar teeth (method of *Abelin-Bokay Sr.*). When, by pressure of the finger, the resistance has been conquered, we have only to depress the base of the tongue in order to force the child to open the mouth and to render all biting impossible. To keep the mouth open, a mouth-gag (Ferguson, D'Ulrich or O'Dwyer's method) should be inserted between the teeth. If one has no mouth-gag, the handle of a spoon wrapped in a piece of cloth and placed between the two rows of teeth may serve in its place. In cases where the jaws cannot be opened easily, for instance when the children violently close the teeth against each other, recourse may be had to the artifice practiced by *Hueter* and *Henoch*, which consists in forcing back the lower lip against the lower incisors; from fear of biting its own lip, the child generally opens its mouth. The use of metal finger protectors (Laugenbeck) or rubber rings seems to me undesirable for several reasons: they prevent introducing the finger deep enough, impede its movements and the sensation which exploration of the pharynx may cause will be absent. Personally, I prefer practicing digital exploration of the pharynx with the child lying down, usually placing myself behind its head and proceeding in such a manner as to introduce the finger

with the palmar surface turned upward and pushing it as far as the posterior wall of the pharynx which I thus explore with the tip of the finger. The administration of chloroform, for the purpose of rendering the examination less difficult (Giraldes), is unnecessary and is moreover dangerous on account of subsequent respiratory troubles and vomiting.

If the retropharyngeal adenitis has not yet passed into suppuration, digital exploration will make us sensible of the presence of a smooth, compact tumefaction of the volume of a small pea, a kidney-bean, a nut, or even of a prune, situated on a level with the edges of the posterior wall of the pharynx. In fully formed abscesses, one finds a smooth, elastic, renitent protuberance; if the abscess be of great volume, this swelling will extend from the upper to the lower part of the pharyngeal cavity and will sometimes entirely fill it, or it may occupy only the left or the right side. In exceptional cases, the abscess is situated on the median line and enlarges laterally. When the morbid process descends very low, or when it is very deeply seated (called post-œsophageal abscesses) we cannot encircle the swelling by ordinary palpation and determine its lower limit; in order, therefore, to make a complete examination, one is obliged to push the finger deeply into the pharynx.

Palpation, however, enables us not only to diagnose a post-pharyngeal inflammation; it satisfies us at the same time concerning the resistance of various points of the tumor and thus gives some indications in the matter of treatment. By exercising pressure on the morbid mass with the exploring finger, one may ascertain whether the abscess is completely formed, and whether a thinning of the wall of the abscess is existent in these places which then offer less resistance.

At the outset, even in acute cases, the fever is moderate; in sub-acute and chronic cases it may be absent. When suppuration is established the febrile disturbance increases and attains a high degree; after the incision or the spontaneous opening of the abscess, the fever ordinarily abates very rapidly, but may reappear if the cavity fills anew, and may continue for several days, reaching a still higher degree than before the evacuation of the collection. The pulse presents no special characteristics. In cases where the respiratory disturbances are very pronounced and are accompanied by cyanosis, the pulse becomes accelerated, small, soft, and hardly appreciable.

In some isolated cases, manifestations on the part of the nervous system may supervene; yet nervous symptoms never appear at the onset of the affection, but only at a period when disturbances of respiration and circulation have become very marked. Somnolence and eclampsia are usually observed at that time. Bokay Sr. has seen, in three cases, facial paralysis after idiopathic abscesses (from compression of the facial nerve at the same level as the stylo-mastoid foramen).

The symptoms arising from study undergo some modifications in "secondary" abscesses (from congestion). Their development is, in general, slow, and the swelling formed in the pharynx is never as voluminous or as tense as in the idiopathic abscesses. In abscesses, from congestion, consecutive upon an inflammation of the cervical vertebræ, the almost absolute immobility of the head and the very lively perception of pain in the nape of the neck dominate the other symptoms and cause movements made by the child to be executed with the greatest apprehension and with genuine fear. In cases of this kind especially, symptoms of abscess develop with extreme slowness; in one, that of a boy of two years, observed by Bokay Sr., the first characteristic symptoms appeared at the end of one year; in another case, that of a boy of five years, not until three years after the onset of spondylitis. Thanks to the diffusion of the purulent collection through the neighboring spaces, moreover, these morbid masses, when they appear in the pharynx, seem still more flattened than the secondary retropharyngeal abscesses consecutive upon supuration of the cervical glands.

Nothing in particular can be said of the symptomatology of abscesses of traumatic origin. In the metastatic or septicæmic abscesses, one finds in connection with extremely grave local phenomena and very rapid development, the symptoms of ischæmia.

Metastatic retropharyngeal abscesses arising from scarlatina, are observed most frequently in extensive necrotic anginas, complicated with gangrene.

Under ordinary conditions, careful exploration of the pharynx serves to establish the diagnosis without difficulty. The various forms of acute inflammation of the throat (parenchymatous tonsillitis for example), hypertrophy of the tonsils, adenoid vegetations and naso-pharyngeal polypi with which adenitis or retropharyngeal abscesses may be confounded, will always be

recognized if the examination of the patient is made in an attentive and conscientious manner. Confusion with croup or a postdiphtheritic paralysis is a diagnostic error which one can hardly commit.

The diagnosis may present some difficulties in cases where the retropharyngeal inflammation is complicated with another serious affection of the throat, scarlatinous necrosis for example; a diagnosis of inflammation or of retropharyngeal abscess then becomes impossible without digital exploration of the pharynx.

We need not enumerate the symptoms which enable us to make the differential diagnosis between idiopathic, and metastatic and secondary abscesses; it is sufficient to refer the reader to those who have already spoken on the matter of the symptomatology of these affections. We will only add that sometimes the most experienced physician will encounter considerable difficulty in distinguishing between a chronic idiopathic and a secondary retropharyngeal abscess.

Prognosis.—In considering the symptoms of retropharyngeal abscess, it is evident that these abscesses must rank among the gravest affections of childhood. In a general way the prognosis is more favorable the earlier the nature of the disease is recognized and the sooner the corresponding operative treatment is instituted, because it is certain that an ignored retropharyngeal abscess, as a rule, terminates fatally. Death does not always arrive slowly; when caused by progressive asphyxia, it may ensue rapidly and unexpectedly. This sudden death appears to be due either to a spasm of the glottis or to “the inhibitory phenomena, whose point of departure is found in an irritation of the nervous terminations of the mucosa, or in an unexpected compression of the great nervous trunks of the neck.” Thoyer-Rozal (1). The spontaneous rupture of the abscess is a very rare contingency, and, in 144 cases, Bokay Sr. saw this take place only 19 times.

In acute cases, the prognosis is further obscured by the appearance of grave symptoms (dysphagia, respiratory disturbance); the younger the child, the more uncertain is a favorable result, because the comparative narrowness of the isthmus of the fauces, at this age, aggravates the severity of the local symptoms and enhances the difficulty of opening the abscess. The migration of the pus to a distance (the length of the œsophagus for example)

1. Abscès rétropharyngiens idiopathiques des enfants. Thèse de Paris, 1896.

and the deep situation of an abscess render the latter not easily accessible and the prognosis doubtful.

If, at the moment of spontaneous or surgical evacuation of the abscess, the pus is inspired (very voluminous abscesses or asphyxiated condition at the time of the incision) the entrance of a large quantity into the respiratory tract may cause symptoms of suffocation and constitute, for a moment, a grave danger to life. The penetration of a small quantity of pus into the trachea and bronchi may occasion aspiration pneumonia which certainly ought to be considered a bad complication.

It is unnecessary to add that in formulating the prognosis, one should take into consideration the constitution (constitutional maladies), the nutritive condition and the strength of the patient.

Our hospital statistics furnish us the following information concerning the termination of idiopathic abscesses: from 1854 to 1880, of 179 idiopathic abscesses, 6 fatalities, or a mortality of 4 to 100, were observed. From 1880 to 1888, of 138 cases, 8 fatalities, or a mortality of 6 to 100. Since then, these figures have not changed appreciably.

Retropharyngeal lymphadenitis, in the cases where it does not pass to suppuration, generally subsides at the end of a period, more or less long, and this disappearance is by no means rare. Among cases observed in hospital, I have seen only one where non-suppurating retropharyngeal adenitis caused respiratory difficulty so severe, that in order to avoid death from asphyxia, we were obliged to perform tracheotomy after the escape of the collection by the simple incision. The child, aged 8 months, recovered in a few days after complete disappearance of the tumefaction from the pharynx.

The prognosis of secondary abscesses is subordinate to the variety of these suppurations. Those from congestion, resulting from inflammations of the connective tissue and the cervical glands, are less grave than suppurations from a lesion of the cervical vertebræ.

The prognosis is doubtful in abscesses of traumatic origin, where, as a rule, a concomitant diffuse inflammation of the post-pharyngeal connective tissue is existent. The prognosis is very bad in metastatic abscesses.

Treatment.—Immediately after the appearance of the first signs of retropharyngeal lymphadenitis, a bladder of ice or cold

compresses should be applied to the submaxillary region on the side occupied by the adenitis. If the tumefaction does not diminish under this treatment, and if soft places, indicating that suppuration is inevitable, are also found, the ice should be replaced by Preissnitz's compresses, since, by the use of warm poultices which hasten suppuration, the abscess may be opened sooner.

Painting the uvula and pharynx with the tincture of iodine or the iodized solution of iodide of potassium, extolled by Schmitz (1873) as resolvents of retropharyngeal adenitis, is no longer in use.

Up to 1888, the retropharyngeal idiopathic abscess was always opened through the oral cavity, and, with some trifling modifications, the physicians of every country operated in the same manner. From 1854 until the present time, this procedure,—incision through the oral cavity,—has been in use at the Stèphanie Children's Hospital of Budapest.

Formerly, we incised abscesses with a narrow pointed bistoury, whose blade was wrapped almost to the point with strips of adhesive plaster. Since 1874, we have used, exclusively, Schmitz's pharyngotome, which seems to us more convenient than that of Carstens' (1). The child is seated, with the head straight, on the knees of the nurse or mother, in such a way, that its head and back are well supported against the chest of the person who holds it and who, with her arms, encloses the body and arms of the little patient, thus rendering enveloping in a cloth unnecessary. An assistant, placed behind, holds the child's head and exercises a moderate pressure with his fingers on the sub- and post-maxillary region in order to immobilize the abscess as much as possible and render its incision less difficult. After opening the mouth sufficiently, we insert, in the pharynx, the index finger of the left hand, which serves as a guide for the introduction of the pharyngotome or concealed bistoury held in the right hand. After carrying the instrument the length of the finger as far as the collection, it is forced into the most dependent part of the abscess. Temoin (2) proposes to evacuate abscesses of large size twice; first to make a puncture with a trocar to drain part of the pus, and afterwards to enlarge the incision with the bistoury to empty the whole collection. As soon as the incision is made, the child's head is bent against its chest in order to facilitate the

1. *Jahrb. f. Kinderheilk*, 1894, p. 373.

2. *Rev. mensuelle des mal. de l'enfance*, 1877.

flowing of the pus through the pharynx and the mouth. To obtain a still more complete evacuation of the collection, the index finger is again introduced into the pharynx and a soft pressure from below upwards is made upon the deepest part of the abscess, the assistant at the same time pressing on the corresponding part of the neck. In my opinion, however, this little operation, very simple in itself, must be executed with a certain rapidity. If, by chance, the first attempt at incision miscarries, one should wait some seconds before making a second effort.

In 1888, H. Burckhardt (3), a physician in Stuttgart, published an article, in which, by virtue of 3 cases, he proposed to handle retropharyngeal abscess no longer through the mouth, but by an internal incision, made opposite the pharyngeal cavity on the internal edge of the sterno-mastoid, even with the larynx. The external incision first practiced by Saint Germain in 1872, then by Etienne of Edinburg in 1877, was adopted as a general method of treatment for retropharyngeal abscesses by Cheyne, in 1881. Sacchi (4) 1892, and Reverdin (5) had recourse to this procedure with success in several cases. Burckhardt thinks that his method is destined to ameliorate the prognosis of retropharyngeal abscesses, and that it is particularly indicated for small children when these abscesses are very extensive and deeply situated. Finally it may be said in regard to this author that the procedure in question would be particularly advantageous in the metastatic retropharyngeal abscesses and those arising from inflammation of the vertebræ.

The principal objections that Burckhardt made to the oral cavity is that when the abscess is evacuated through the mouth, it is difficult to keep the incision open, that post-operative treatment cannot be conducted antiseptically and that, according to Professor König's expression, the treatment of these abscesses does not correspond to the modern ideal of the treatment of abscesses in general. The justice of these remarks should be admitted, of course, but at the same time, I wish to add that the objections made to the oral cavity have not, really, very great importance. It is true that it is difficult to keep the incision open and that in the course of the malady one is sometimes obliged to repeat the operation two, three or even four times; but it is also certain, as is already sufficiently shown by the slightly increased

3. *Centralb. f. Chir.*, 1888, No. 4.

4. Cited by Karewski. *Die chirurg. Krankh. d. Kindesalters*.

5. *Rev. méd. de la Suisse romande*, XV., 2.

mortality in our statistics, that these multiple interventions neither influence nor aggravate the malady. As to the treatment of the abscess after its opening through the mouth, it hardly admits of anything else than washing the throat from time to time with water or a weak antiseptic solution (boric acid) and the systematic expulsion of the contents of the abscess with the finger. Although these therapeutic measures may be very far from the modern ideal of the treatment of abscesses, they have, nevertheless, given very satisfactory results up to the present time. Therefore, the external incision does not seem to me preferable to the incision through the oral cavity, for the reason that Burckhardt's procedure is a delicate operation and one which every physician cannot execute under all circumstances. Indecision or delay in retropharyngeal abscesses may cause the patient's life. But I willingly confess that this procedure seems to me destined to have a great future in the operative treatment of retropharyngeal abscesses of traumatic origin or consecutive upon an inflammation of the cervical vertebræ.

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