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PRACTICAL OBSERVATIONS ON SOME OF THE MORE IMPORTANT POINTS OF PHYSICAL DIAGNOSIS.

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(Continued from page 51.)

DIAGNOSIS APPLIED TO DISEASE.—PHYSICAL SIGNS AND OBSERVATIONS.—LARYNGITIS.

Auscultation.—Harsh laryngeal breathing; if obstruction exist, sonorous and sibilant laryngeal rhonchi; if mucus or pus be present, laryngeal gurgling. Thoracic sounds enfeebled in the chronic form of the disease, most probably in part from tuberculous deposit.

Observations.—The occurrence of difficult deglutition, followed by dyspnoea, without sufficient apparent causes existing in the throat or chest, should at once excite the greatest vigilance. Abscesses in the vicinity of the larynx, thoracic aneurism, and especially hysteria, have been, and without care, are liable to be, mistaken for acute laryngitis.

CROUP.

Auscultation.—Loud and harsh laryngeal breathing, with sonorous, and sibilant laryngeal rhonchi. According to M. Barth, if the false membranes be loose, a trembling flapping sound is audible, the extent of which, if limited, is said to augur favourably in the prognosis, inasmuch as there is a probability of the false membranes not occupying a large surface of the air-tube.

Observations.—The age of the patient, and the history of the case, will assist materially the diagnosis of croup. Hysteria in very young females often closely simulates croup. Under these circumstances, the negative results of auscultation prove valuable auxiliaries.

BRONCHITIS.

Auscultation.—Inspiration usually feeble at the immediate seat of the disease; puerile at a distance; expiration prolonged; both sounds more or less masked by sibilant and sonorous rhonchi; different degrees of muco-crepitation, varying with the vicinity of the secretion and the calibre of the tubes.

Percussion.—Normal; occasional dullness if the secretion be abundant at the postero-inferior regions of the chest.

On application of the hand, the rhonchal fremitus is occasionally perceptible.

Differential Diagnosis.—The physical signs of bronchitis, increasing from below upwards, together

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with the normal character of the stroke sound, more particularly under the clavicles, suffice to distinguish this affection from phthisis. The points of difference in the two diseases will, however, be again referred to. The absence of tympanitic clearness will prevent its being confounded with pulmonary emphysema.

DILATATION OF BRONCHI.

Auscultation.—Harsh, blowing, and sometimes cavernous respiration; sibilant, sonorous, and muco-crepitating rhonchi; bronchial or cavernous cough; bronchophony.

Percussion.—Clear, if the bronchus be close to the surface; dull, if much consolidation exist above or around it; often tubular. Tactile vibration both of voice and cough increased.

Observations.—Chronic bronchitis and hooping-cough are the diseases principally inducing dilatation of the bronchi. In this affection the expectoration is often extremely fetid. In two very interesting cases, I have succeeded in removing a peculiar and almost intolerable factor, arising from the expectoration, by the inhalation of creosote, with the steam of hot water. The quantity used was one drop three times a day, gradually increased to four.

The ordinary seats of dilated bronchi, are the scapular, mammary, and lateral regions; those of tuberculous excavation, more especially, the infra-clavicular and acromial. The permanent character of the former will also tend to assist in the diagnosis. It is, however, often extremely difficult to distinguish this disease from phthisis in its third stage. Repeated physical examination of the chest; careful analysis of the general symptoms, and history of the case; observing the rapidity with which the cavities enlarge, and ascertaining, if possible, whether their formation have been preceded by dullness or percussion, (which will have obtained if the affection be phthisis,) must severally be taken into account, in order to arrive at a correct conclusion.

VESICULAR EMPHYSEMA.

Inspection.—General roundness and prominence of one or both sides of the chest, with widening and expansion of the intercostal spaces. Respiratory movements limited, and difficult; the ribs rising *en masse*, and collapsing tardily, and with difficulty.

On mensuration, the affected side will be found increased; at the same time the tactile vibration, both of cough and voice, will have undergone diminution. In severe cases, the adjacent viscera, both of the chest and abdomen, suffer displacement.

Auscultation.—Respiratory murmur feeble at the

seat of the disease, occasionally inaudible; exaggerated in the healthy structure; sound of expiration increased and prolonged; if bronchitis co-exist, the dry and moist rhonchi of that disease; vocal and tussive resonance, together with the cardiac pulsations, diminished as transmitted through the emphysematous portion of lung.

Percussion.—Morbidly clear, abrupt, and more or less tympanitic.

The diagnosis of interlobular emphysema is by no means precise. The suddenness of the occurrence, with a diminutive of the above phenomena, will throw some light on the nature of the case. I have satisfied myself, in more than once detecting a limited friction sound, with morbidly clear percussion. The question is still at issue.

Observations.—The physical signs, with the history of the case, will in general afford sufficient indices of pulmonary emphysema. If the upper part of the lungs are chiefly implicated, the difficulty of breathing will be less than if the converse were the case, unless in the event of the lower lobes becoming simultaneously affected by bronchitis. In emphysema the intercostal spaces are less obliterated than in pneumothorax, in which disease, the stroke sound is completely tympanitic; the sounds of respiration also, in the latter affection, are generally audible about the roots of the lungs; in addition to which, the almost invariable co-existence of phthisis, or liquid effusion within the chest in the case of pneumothorax, renders the diagnosis comparatively easy. The precise condition of the heart should in all cases be ascertained by careful examination.

SPASMODIC ASTHMA.

The physical phenomena peculiar to asthma are by no means definite, and partake more or less of the bronchitic character. The respiratory movements during the attack are generally performed irregularly, and with more or less jerking, while the murmur may be either feeble, suppressed, or on the contrary, puerile.

The absence of morbid sounds in the neck, will prevent asthma being mistaken for affections of the larynx or trachea.

PHTHISIS PULMONALIS.

It will be convenient to consider the physical examination of phthisis, under four heads or degrees, consonant with the pathological condition of the lungs, viz., 1st, the incipient stage, or period when the tubercles are few in number, scattered, at the same time limited in extent; 2ndly, the period in which the deposit is more abundant, but still unsoftened; 3rdly, the stage of softening; and 4thly, that of excavation and cavern.

1st DEGREE.—INCIPIENT PHTHISIS. TUBERCLES, FEW IN NUMBER, SCATTERED, LIMITED IN EXTENT.

Inspection.—Infra-clavicular region natural, or slightly depressed and flattened; elevation of the upper ribs impeded, although by no means so constant a phenomenon in this stage as when the deposit is more extensive.

Auscultation.—Respiratory murmur in the upper part of the chest feeble, more or less suppressed; exaggerated in the opposite lung, if one only be affected;

inspiration weak, harsh, or slightly bronchial, sometimes jerking; expiration prolonged and unnaturally loud; more rarely absent; slight crackling, sometimes audible at the close of a deep inspiration; resonance of voice and cough somewhat increased.

Percussion.—Slight dulness, often scarcely appreciable. Some difference in the character of the sound may generally, however, be elicited by careful comparison.

2nd DEGREE.—TUBERCULOUS DEPOSIT, MORE ABUNDANT AND EXTENSIVE.

Inspection.—Flattening and depression of infra-clavicular region more pronounced; costal elevation still further diminished. Vibration imparted to the hand by speaking, and cough, increased in proportion to the amount and density of the deposit.

Auscultation.—The phenomena of the incipient stage increased; inspiration harsh and bronchial, sometimes tubular; expiration louder, and more prolonged; bronchophony and bronchial cough; heart's sounds transmitted with unnatural clearness through the consolidated portion of the lung; in the healthy parts the respiratory murmurs puerile; occasional sounds of dry crackling, more particularly at the close of a deep inspiration.

Percussion.—Complete dulness, with considerable resistance to the finger.

3rd DEGREE.—TUBERCULOUS SOFTENING.

The signs derivable from inspection and tactile examination, similar to the above, probably more marked.

Auscultation.—Sounds of respiration at the apex of the lung obscured by a muco-crepitating rhonchus, of less intensity from above downwards; lower portion of lung presenting the phenomena of unsoftened tubercles. As the softening progresses, the bubbles of the rhonchus become more developed and extended, especially of the cough or deep inspiration. Resonance of the voice and cough loudly bronchophonic; heart's sounds transmitted with abnormal distinctness.

Percussion.—The same as in the second degree.

4th DEGREE.—EXCAVATION OR CAVERN.

Inspection.—In addition to flattening, the infra-clavicular and supra-scapular regions are now often obviously drawn inwards; costal motions still more impeded.

If the cavity be large, a rhonchal fremitus is sometimes perceptible, on application of the hand over its immediate seat.

Auscultation.—Influenced by the amount of liquid in the cavity, cavernous or amphoric respiration, alternating with gurgling rhonchus; voice strongly bronchophonic, amphoric, or with distinct pectoriloquy; cough cavernous and metallic; under favourable circumstances metallic tinkling.

Percussion.—Dull, if the cavity be deeply seated and covered by consolidated lung; resonant, almost tympanitic, and with the cracked metal character, if the excavation be large, empty, and superficial.

Observations.—The almost invariable deposition of tubercles in the first instance in the upper part of the lungs, decreasing from above downwards; the phenomena at first confined to one lung, or if both be affected, the greater advance of the disease in one; the collateral circumstances, and history of the case,

are the chief indices on which our diagnosis must be founded. The occurrence of hæmoptysis, provided that it do not result from external injury; or, if a female, from suspended catamenia, should at once excite suspicion of tubercle.

There is, however, an affection, presenting occasionally in hysterical young women, which is extremely liable to be mistaken for phthisis. The symptoms are these:—added to the hysterical diathesis, there is cough, short and hacking, or in occasional paroxysms; expectoration of mucus, tinged, and at times largely mixed with blood; pains in various parts of the chest; pulse *seldom above eighty*; tongue clean; considerable anorexia; bowels generally sluggish; catamenial flow, regular and healthy, sometimes profuse; *no emaciation*; sounds on percussion normal; an inferior degree of the moist bronchitic rhonchi, although not persistent, audible in various parts of the chest. Under these circumstances it is evident that the diagnosis must be chiefly influenced by negative evidence, such as the state of the pulse, the freedom from emaciation, the normal result of percussion, together with the absence of those phenomena, general, and physical, more especially appertaining to tuberculous phthisis. This affection is usually of considerable duration, and does not yield readily to treatment; the patient ultimately recovering completely, under the influence of comparatively insignificant remedies, or as the result of an unexpected moral impression.

In reference to bronchitis, the locality of the signs, with their subsequent progress from below, upwards, (the direct converse obtaining in phthisis,) will in the majority of cases enable us to diagnose correctly. A minute crepitation, confined to the upper part of one or both lungs, not extending downwards, especially if there be slight cough, with some acceleration of the pulse, notwithstanding a normal resonance on percussion, should render us extremely suspicious of the existence of tubercles.

The co-existence of tubercles and pneumonia is by no means uncommon, and calls for great vigilance on the part of the practitioner, since by overlooking, and not combatting the latter affection, which consequently becomes chronic, the former, viz., the tuberculous deposit, in very many cases assumes an active condition, running through its various stages to a fatal termination, with melancholy rapidity. If, notwithstanding treatment, a pneumonic consolidation, wherever detected, remain stationary, while cough, fever, and other symptoms increase, and by the stethoscope we are able to trace a progressive diminution of the vesicular murmur, whether ascending or descending, more especially if these changes be accompanied by moist crepitation, we may with great certainty predict the deposition of tuberculous matter.

Although in the very great majority of cases, the progress of phthisis, in regard to the physical signs, follows the course above described; still the important fact must not be overlooked, that in a few very rare instances, phthisis may not only proceed to a fatal termination without cough, but also, that the same event may equally occur, notwithstanding the absence of the directly characteristic physical phenomena of the disease. Under both peculiarities the lungs, after death, will be found thickly studded with

a deposit of nascent tubercles. More commonly, however, in what is termed acute phthisis, we have, in addition to slight dulness on percussion, the existence of a small moist crepitation throughout the lesser tubes, accompanied by considerable and constant dyspnoea. Under these circumstances, whatever treatment be adopted, it will too often be found to prove hopelessly unavailing. The feeble respiration, which may occasionally obtain from limited emphysema of the apex of one lung, will be readily distinguished from that arising from tubercle, by the correspondingly increased resonance on percussion. Local congestion of the apex of one or both lungs simulates, I believe, more frequently than is generally imagined, the first stage of phthisis, and as a sequence, not unfrequently gives origin to diagnostic error, and consequently an unfavourable prognosis.

The differential diagnosis, in many instances, is by no means easy; thus we have, in addition to cough, and mucous expectoration, dull sound on percussion, feeble respiration, bronchophony, and bronchial cough, all which phenomena we have seen appertain to incipient phthisis. My own observation, in addition to the history of the case, and result of treatment, would lead me to found the distinction, principally on the character of the respiratory murmur. In congestion, it is feeble, and simply feeble; is free from harshness and roughness, and unaccompanied by prolonged expiration; which signs, individually or collectively, are more or less constantly developed during the early stage of pulmonary phthisis. The co-existence of tuberculous deposit, with congestion, will necessarily for a time render the diagnosis doubtful.

The treatment which I have found most serviceable in these local congestions, in addition to a mild farinaceous diet, has been repeated leeching in the neighbourhood of the affected part; slight, but decided mercurialization; emetics, at first on alternate mornings, subsequently less frequently; salines, with small doses of antimony; and, if necessary, at a later period, the application of flying blisters.

INTRA-THORACIC PULMONARY TUMOURS.

Inspection.—Depending upon the position and size of the tumour, the side may either remain unaffected, or undergo retraction or dilatation; intercostal spaces, natural, sunk, or, on the contrary, widened and projecting; motions of ribs much impeded.

Auscultation.—Respiration loudly bronchial, or, as the disease advances, gradually suppressed, and finally abolished; cough and voice bronchophonic; sounds of heart transmitted with unnatural distinctness; respiration in opposite lung loudly puerile. In the event of softening taking place in the malignant mass, we detect in succession the various rhonchi of advanced phthisis.

Percussion.—Resulting sound intensely dull, resisting and unaffected by position. If the tumour be large, the circumjacent viscera are liable to considerable malposition.

Observations.—The formation of a correct diagnosis in cases of tumours connected with the respiratory organs requires caution, and a considerable degree of tact on the part of the examiner. The less extended, and the more isolated the disease, the greater will be the liability of falling into error.

The phenomena considered as principally charac-

teristic of tumours within the chest, in addition to the physical signs, are, dysphagia, dyspnoea, a distended state of the thoracic and abdominal veins, occasional variation between the radial pulses, cedema of the extremities, fixed pain, (not necessarily present,) the expectoration of a fluid resembling red currant juice; and, if to these we subjoin the inefficacy of remedial measures, and the occasional existence of malignant disease in other parts of the body, the facility of diagnosis will be greatly increased.

The absence of rhonchus, as well as of the general symptoms of pneumonia, will assist in directing the diagnosis, between tumour of the lung and that disease; while in reference to phthisis, in addition to the negative evidence, its almost invariable confinement to one lung, will equally facilitate the diagnosis between the malignant affection, and consolidation, the result of tubercles.

PNEUMONIA.

For practical purposes, it will be found desirable to adhere to the three established divisions or stages of the disease, connected as they so intimately are with its pathology.

1st STAGE.—CONGESTION OR ENGORGEMENT.

Auscultation.—Diminished respiratory murmur, quickly succeeded, and more or less marked by a fine, dry, crepitating rhonchus, unaffected by cough, confined to inspiration, and rendered more pronounced, if that act be performed deeply; respiration in the surrounding pulmonary tissue and in the opposite lung puerile; resonance of voice and cough slightly augmented.

Percussion.—Sound less clear than natural over the affected part.

2nd STAGE.—HEPATIZATION.

Inspection.—Impeded elevation and expansion of the ribs; vibration of the voice and cough, as felt on applying the expanded hand to the affected side, increased.

Auscultation.—Respiration bronchial; puerile in opposite lung; bronchophony and bronchial cough; heart's sounds transmitted through the diseased portion of lung, with unnatural clearness.

Percussion.—Greatly diminished sonoriety, to complete dullness, with considerable resistance to the finger.

3rd. STAGE.—SUPPURATION.

In addition to the signs of the preceding sections, the addition of a muco-crepitating rhonchus accompanying the act of inspiration, is indicative of commencing suppuration. The characters of the expectoration, with the supervention of hectic, and the detection of the phenomena of cavern, especially if it be located in the central or lower portions of the lungs, will at once direct the diagnosis to either abscess or gangrene.

SIGNS OF RESOLUTION.

Auscultation.—The return of the crepitating rhonchus, especially at the close of a deep inspiration, extending and assuming more and more the characters of muco-crepitation; at first mingled with, and subsequently giving place to, healthy respiratory murmur; bronchophony and bronchial cough less marked, and gradually disappearing.

Percussion.—A progressively decreasing dullness, to a complete restoration of the normal resonance and elasticity.

The above phenomena are applicable only to the resolution from the second and first stages of the disease, since, if suppuration have taken place to any extent, the disease too commonly terminates fatally. It should also be recollected, that cases of pneumonia do occasionally occur, in which the ordinary physical signs of a return to healthy structure in the lung, are very indistinct, if indeed they are in any degree appreciable.

In the chronic form of the disease, the results of auscultation and percussion assume greater permanency, and resemble more or less the phenomena of the second stage of the acute, the chief peculiarity of the former, being the more complete absence of murmur, and a feeble character of the bronchial breathing and bronchophony.

Observations.—Although opposed to the too minute subdivisions into which some of the auscultatory phenomena have been separated by writers on the subject, as tending to mystify and perplex, rather than enlighten and develop the sufficiently delicate path of the young auscultator, when practically investigating for himself the nature of disease at the bedside of the patient; still, on the distinctive character of the true crepitating rhonchus, a passing remark appears necessary.

Perfect pneumonic crepitation obtains under the form of a number of very fine dry bubbles, of equal size, *exclusively confined to the act of inspiration*, and bursting as it were somewhat abruptly, and in whiffs, at the termination of that act. The muco-crepitating rhonchus, on the contrary, although in its finer shades, closely simulating the above, accompanies both acts of respiration; the bubbles also of the latter are of less equal size, and of greater humidity.

While the true crepitating rhonchus, if clearly developed, is considered as pathognomonic of the first stage of pneumonia, the presence of the muco-crepitating sound, in connection with other circumstances, becomes diagnostic of capillary bronchitis, pulmonary cedema, acute phthisis, congestion, and lastly, apoplexy of the lung.

The differential diagnosis between pneumonia and capillary bronchitis, is based principally on the character of the crepitation; the bronchophony, bronchial cough, and respiration; the dullness on percussion; the expectoration; the pungent temperature of the skin, with other general symptoms pertaining more immediately to the former disease. The association, however, of the two affections is extremely common; in fact, although bronchitis may obtain, without pneumonia, the existence of the latter disease to any extent, unaccompanied by more or less bronchitis, is impossible. Under these circumstances, the pneumonic crepitation is often masked by the louder rhonchi of the bronchitis. Carefully repeated examination will, however, generally detect the fine sound of crepitation in the posterior and more depending portions of the lung, while the louder rhonchi of the larger tubes will be more diffused, and maintain a somewhat higher position in the chest.

The characteristic difference between pneumonia and liquid effusion within the chest, rests principally on the absence, in the former disease, of visceral and intercostal displacement, the presence of more or less crepitation, the bronchophony and bronchial breathing

more pronounced, vocal vibration, and lastly, the dul sound as elicited by percussion, influenced by change of posture. The febrile symptoms of pneumonia, together with the character of the expectoration, the dry equal crepitation, and the absence of hæmoptysis, will chiefly aid in distinguishing that affection from apoplexy of the lung.

Œdema of the lung is distinguished from pneumonia by the history of the case, by its usually supervening on other diseases, especially those of debility, by its commencing in the most depending part of the lung, both of which organs are commonly affected, an event of somewhat rare occurrence in pneumonia; and lastly, by the different characters of the expectoration and rhonchi in the two diseases.

The crepitation of pneumonia is of short duration, quickly giving place to resolution or hepatization, while the muco-crepitation of pulmonary œdema not unfrequently is persistent for weeks.

(To be continued.)

A CRITICAL ANALYSIS OF THE PRINCIPAL FACTS OF DISEASE.

(Continued from page 39.)

INFLAMMATION—SUB-ACUTE.

The remarkable fact, that after division of the excitatory capillary nerves, the heart alone is inadequate to maintain the capillary circulation beyond a limited number of days, (ix. 5 a.) is a clear indication of the special influence of the nerves over the capillary system. (ix. 10.) The nature of this influence it is not easy to determine, but it is allied, as may be made to appear, to the due performance of the capillary functions. The effects of division of nerves on secretion and nutrition, afford the proof of this assertion. They show distinctly that removal of nervous influence leads to an arrest of the secretory and nutritive functions.

As to the influence of the nerves on secretion, it was determined by Tiedemann and Gmelin that, "after division of the nervus vagus, the secretion of gastric juice ceases;" by Brodie that, "when the nervus vagus, and nervus sympathicus, have been divided, arsenic does not give rise to the copious secretion in the stomach and intestines which usually follows its exhibition." (Müller.) And Magendie states that, after death, arising from division of the eighth pair, "on opening the chest, one finds the bronchial cells, the bronchi, and trachea itself, filled with a frothy, and sometimes bloody liquid, &c." (*Précis Elementaire de Physiologie*.)

Krimer states, "that on examining the state of the urinary secretion, after having divided the nerves of the kidneys, he has found it contain albumen and red colouring matter of the blood, their proportion increasing in the same degree as that of the proper constituents of the urine decreased." (Müller.) These results have been confirmed by Brachet, on the dog, who found in the urine, which was red, a fibrous coagulum and serum.

The experiments of Müller himself, in conjunction with Dr. Peipers, were still more decisive. He says, "We applied a ligature to the renal vessels, the ureter being excluded, and tied it so tightly that the texture of the renal nerves included in it should, at that point,

be destroyed. We then loosened the ligature again, so that the circulation of the blood through the kidney was re-established. The ureter was brought to the exterior of the body, and a tube connected with it. In most cases the secretion of urine was completely arrested, even when the same operation was performed on the second kidney, (in a sheep,) and the ligature retained on that side to render the secretion of urine there quite impossible."

The influence of the nerves on nutrition, as proved also by negative experiment, is equally discernable. Müller and Peipers found, in the above experiments upon the kidney, that destruction of the nervous structure gave rise to softening of the gland invariably. The following well-known result of the division of the trifacial nerve within the cranium, obtained by Magendie, may be quoted:—

In 24 hours, cornea, opacity of.

In 2 hours, cornea, opacity of, increased.

In five or six days, cornea, resembling alabaster.

On the second day, conjunctiva reddened, as if inflamed; afterwards secreting pus, milky, abundant.

On the twelfth day, iris red, vessels large, inflamed, followed by false membrane on the anterior surface, &c.

On the eighth day, cornea, ulcerated; detached at its circumference from sclerotic; followed by escape of humours, and reduction of the eye to a small tubercle.

Results similar in character have been occasioned by atrophy of the fifth pair of nerves at their origin. (Vide Dr. Marshall Hall, op. cit.)

The following fact from the same work bears upon the subject under discussion, "A lady," says Dr. Marshall Hall "had violently torn the integuments of the left side of the fore-finger, lacerating the nerve of the inner edge. The nail on that finger grew ever afterwards far less rapidly than that of the fore-finger on the other hand."

Such and similar are the effects of an injury to the nerves upon secretion and nutrition; but, as already stated, the nature of the nervous influence it is less easy to determine. To endeavour to resolve the difficulty is only to advance into the region of hypothesis, and reason on assumed analogy, which is useless.

It cannot even be determined at present, whether the influence of the nerves on the nutritive process is direct or indirect. The effects of abstraction of nervous power may be attributable, and with some show of reason, to that arrest of circulation which ultimately occurs when the nervous function is suspended.

In Dr. Marshall Hall's experiments on the effects of loss of blood in dogs, the cornea became opaque; and, as he states, "the same effect was induced in the same animals by M. Magendie, by feeding them upon insufficient food."

It is different with the process of secretion, which actually responds to nervous excitation. That such is the case is evidenced in sudden salivation from the sight of food, lachrymation from an irritant applied to the conjunctiva, and analogous phenomena.

That determination of blood to secreting organs is the direct result of nervous excitation is undeniable; but it is equally certain that secretion is not caused by remora only. Indeed that state gives rise to arrest of secretion, unless it arises consentaneously with nervous action.

It has been shown, that a nervous system derived