

INAUGURAL DISSERTATION

ON

Physical Diagnosis

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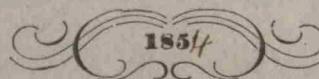
DOCTOR OF MEDICINE.

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A auscultation from ausculto literally the act of listening, is now properly applied in practical medicine to a particular method of exploration the object of which is the discovery and discrimination of disease in any part or organ of the living body, by the sounds which it gives out to the ear, —

The signs of disease recognised by auscultation, may be derived from sounds produced, naturally within the body by the motions of the organs, or from sounds artificially produced within the body or on its surface by percussion, siveussion,

Of the origin of auscultation, it is stated that upwards of two thousand years ago Hippocrates availed himself of the means of auscultation

to detect the existence and ascertain
the nature of disease of the chest,
The honor of the discovery at least of
having first applied it to the discovery
of diseases of the chest is undeniably
due to him.

But the practice of auscultation was
comparatively unknown until the
time of Laennec to whom we are chief-
ly indebted for the great usefulness
of this means of diagnosis in chest
affections,

Subsequently it has received the atten-
tion of Andral, Williams Stokes,
Gerhard, and others each adding their
excellencies until, in the language
of Dr. Hooper they have not only
redeemed these diseases from their
obscurity, but actually rendered their

diagnosis more precise and certain
than that of any other important
class.

Twenty or at least only a few years
since the diseases of the lungs and
heart, were considered more obscure
than any great class in the nosology,
auscultation is termed immediate
and mediæ according as the ear
is applied directly to the surface
of the body or the sound is conveyed
to the ear by the interposition of
some conducting material,

The instrument which seems best ad-
apted and almost universally used at
the present day is the stethoscope, whi-
ch is now well known to demand
any description by me. Both methods
of auscultation have their peculiar

advantages, we should not reject or adopt either exclusively, our choice should depend upon circumstances of which, I will enumerate the following; The ear perceives sounds over a greater extent all the parts of the head in contact with the body of the patient, becoming conducting medium. The stethoscope is not always at hand and is almost inapplicable to children its sight causing alarm, The ear is also more easily and accurately applied to the posterior regions of the chest, On the other hand the stethoscope has decided advantage of applicability in the axilla the subclavicular region & supra spinous grain,

Feelings of delicacy, would prevent the physician from applying his naked ear to certain parts of the female.

In obstetrical auscultation the instrument is preferable for the above motive and also for its decided superiority in collecting and concentrating the sounds of the foetal heart;

It alone should be employed in auscultation of the Larynx, Trachea, bloodvessels and in all circumstanced alteration, whilst immediate auscultation is preferable in extensive disease as Sclerotic Bronchitis, &c. Certain general rules relative to the patient, and the physician, are necessary to be observed in ^{attention} auscultation.

in order to establish a correct diagnosis, in relation to the patient. The part to be examined should be covered with a thin smooth garment, thick clothing, & woolen stuff are objectionable, being bad conducting material, silk or stuff also from the rustling noise they produce are prejudicial.

The position of the patient should vary according to the region to be examined, it should not be constrained, The practitioner may generally explore both sides of the thorax without changing his position, he should early habitualize himself to the use of either ear indifferently, he should not be too hasty in the examination, &

so collect his thoughts as to be completely isolated from the external world." The pressure should be only moderate so as not to be painful to the patient nor obstruct the hearing. Both mediast and immediate auscultation should be used in order to establish a just and certain diagnosis.

As it is my design to restrict my remarks to the signs derivable from auscultation and percussion of the pulmonary organs, something, indeed, much might be said of the anatomical structure of the thorax and the organs contained within, as also the physiological actions of the same which so favourably circumspace them for the multiplication

and distinctness of physical signs, The human thorax may indeed be not ineptly described says, Gorberus a sort of elastic box or basket of bones and cartilages the interstices of the coarser work being filled up by a thin layer of flesh, and the whole covered, both externally and internally by a membrane of considerable density the greater portion being of the inner cavity being filled with air diffused through the spongy texture of the lungs.

It is obvious then that when the chest is struck the sound elicited will be in direct proportion to the quantity of air contained in its cavity, and as the result of every organic change in the lungs is a

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diminution or increase in the quantity of air contained in the thorax so the sound produced, will be dull or clear in other words increased or diminished in corresponding degree; we must recollect the duplicity and separation of the lungs upon which depends, the great principle of comparison, we may consider the chest in relation to the construction of its walls and the mobility of the organs contained within them an abundant source of diagnosis presents itself in the displacements of these viscera and those adjacent in the abdomen in certain chest affections, again the motion of these organs which their functions require becomes, a

source of diagnosis, when they are in any way interrupted, at least we notice them as deviations from the healthy condition of these viscera. Facilities also are found in the elasticity and permeability of the lungs of which, I shall not attempt a consideration,

An accurate diagnosis is not obtained from the study of symptoms alone in chest disease, so vice versa, signs are insufficient, without symptoms. There is no such thing as a perfectly pathognomonic symptom or sign of any thoracic disease. Hence to arrive at an accurate conclusion the study of the signs, to symptoms must be ~~combin'd~~ combined.

In auscultation of the Respiratory apparatus three orders of phenomena present themselves as objects of study, furnished by the respiratory murmur, the voice, and the cough,

The sounds of respiration can be heard by applying the ear to the chest, they vary in degree according to the distribution of the tubes of which; we may judge by attending to these sounds.

The sound produced in the trachea is a hollow blowing sound resulting from the passage of air to & fro in the windpipe" this is tracheal respiration, that in the bronchi of larger caliber is the same as the tracheal, modified somewhat by the caliber of tubes.

There is yet the vesicular respiration or the "pulmonary respirating" of Sauno, which is perceptible over all parts of the chest so that the lungs are in contact, it consists of two different sounds that of inspiration & of expiration, the one caused by the penetration of the air through the minutest tubes and into the air cells, the other, the respiratory depends upon its expulsion. This vesicular respiration has been described as analogous to that produced by a person in a quiet sleep,

It is defined by an author as a soft, quiet & a mellow, continuous & gradually developed, breezy murmur unal tered with a sensation of dryness, or humidity Sauno says that this

respiratory murmur is heard both in inspiration and expiration, Mr. N. Barth & Rogers also describe it as being composed of two different sounds soft and, distinct to the ear, The American editor to Stokes says that this is an error in Saenger whereas it is in fact almost entirely produced during inspiration and when heard in a rattled manner during expiration, we may suspect some morbid condition of the lungs, I do not the balance of authority contrary to this latter opinion, However numerous the modes by which this sound may be imitated an accurate idea of it can only be gained by practice, The intensity of the respiratory sound varies in different parts of the chest,

as does the sound on percussion, it is most perceptible in the axilla, the supra and sub-clavicular and subscapular regions. Difference of opinion exists as to the comparative bow and intensity of the inspiratory sound in the right and left subclavian spaces. Generally it is thought to be louder in the right owing to the greater diameter and straightness of the right bronchus. M. Goumet thinks from the physical condition of the two lungs that there is no reason for their furnishing different sounds.

Dr. Stakis thinks that in many persons there is a difference and that the greater distinctness of this sound occurs in the left lung, when heard

over those portions of the chest before designated, viz those with which the lungs are in contact. These organs may be regarded as performing their healthy functions. Alterations of the respiratory murmur, These may be considered under the heads of Intensity Rhythm, Character and alterations by adventitious or abnormal sounds.

Puerile Respiration, This is so called from the fact that in children the respiration is much louder than in adults,

The cause of this is not precisely known but may be referred to the activity of the organs in early life. It consists in a more intense vesicular murmur than natural,

and when occurring it announces a lesion not generally in the part over which it is heard, but in a corresponding part of the lung on the opposite side. The healthy parts making up for those affected. Its seat is variable. It depends upon obstruction ~~so~~ from various causes, we find it as a consequence of Pneumonia, Pleurisy, foreign bodies in the bronchia, sometimes to tumours in the thorax, to the dissemination of tubercles, and in all diseases which curtail the healthy proportions of the organs of respiration.

Fleeb respiration, This in opposition to purile respiration is characterized by a diminution in the intensity of the normal respiratory ^{mus-} m-

It may be owing either to the sound being transmitted with less distinctness to the ear or to being less clearly produced, in the first case, the cause may be the presence of an intrathoracic tumour separating the lung from the walls of the chest to pleuritic effusions, thick false membranes;

In the second case to obstructions by mucus, a foreign body or to pain, compression or contraction of the principal bronchus, & at variable times in which it is most commonly observed are. Phthisis, Emphysema, and Pleurisy, with effusion. If upon percussion there be dullness and this confined to the summit of the lung,

with feeble respiration in the opposite side, tubercles are almost certainly present. If feeble respiration coincides with increased resonance of the thorax we may diagnose Pulmonary Emphysema. If the dullness exists and is circumscribed at the lower portion there is most probably pleuritic effusion. Absent respiration, complete obstruction to the entrance of air or the interposition of matter solid or fluid may give rise to absent respiration. The air may be prevented from entering the air cells by the occlusion of a large bronchus by tenacious secretions, in this case the sound on percussion is good, in inflammation of the lungs the air enters

the bronchus freely, but the cells being incapable of admitting any air being filled, with matter solid or fluid the sound on percussion here will be dull,

The lung may be removed from the walls of the chest by solid, fluid or gaseous matters destroying the respiratory function and in this case the application of percussion will instantly reveal the nature of the matter, the sound elicited being dull if fluid or solid matters are present, on the contrary morbidly clear if gaseous matter are interposed, The diseases in which it occurs the same as full respiration, it indicates more decided anatomical lesions,

Alteration of Rhythm, slow respiration, This depends upon the relaxation of the respiratory muscles proceeding from disease of the cerebro spinal axis, frequent respiration occurring in inflammation of the lungs or abdominal viscera,

Respiration is frequent in proportion as the extent of respiratory movements is diminished;

Increased activity of the circulation will give rise also to frequent respiration

jerking respiration, dependent on pain and the presence of pleuritic adhesions,

The prolonged respiration, as there are different opinions as to the physical cause of prolonged expiration

I shall only observe that it is considered as a symptom of only two diseases Pulmonary Emphysema and tuberculosis in the first stage of their development, heard generally at the summit of the lung.

Storbe states that he has occasionally heard prolonged expiration apparently as a natural condition,

Alterations of characters.

Harsh Respiration is heard in Emphysema in expectant, Phthisis and all cases where there is induration of the pulmonary substance and dryness of the mucous membrane of the bronchial tubes. In Phthisis its seat is at the summit of the lungs in other cases it is variable.

Bronchial respiration,
In the state of health bronchial respiration is not audible except perhaps over the course of the large bronchial branches being rendered imperceptible by the bad conducting powers of the texture of the lungs and masked by its intermittence with the more general sound caused by the entrance of air into the pulmonary cells, when the normal vesicular murmur is destroyed by the consequence of inflammation it is replaced by the bronchial or bubal blowing sound, whatever causes condensation of the pulmonary substance as Phthisis, Pneumonia, Pleurisy, with effusions, Pulmonary apoplexy,

If slight and confined to the sum-
mit of the chest most commonly it
depends upon the presence of crude tuber-
culosis if supervening upon a chronic
affection, If the attack is more acute
we must suspect the presence either
of Pleurisy or Pneumonia Cavernosa
Respiration Cavernous snuff
or blowing sound, This is produced
by the entrance of air into a cavity
formed either by the softening and
expectoration of tubercles, by gangre-
nous abscess, it generally occurs at
the summit of the lung and from
the comparative infrequency of
the two latter mentioned causes it
may be considered as diagnostic of
the first, It is sometimes difficult
to distinguish from bronchial or

tracheal respiration and in such cases,
the diagnosis must be formed from
other circumstances such as the char-
acter of the voice gurgling and the
results of percussion; amphoric
respiration produced by the passage
of air into a large cavity by a
moderately wide opening and above
the level of any liquid contained
in the cavity, may be imitated by
blowing into a large empty pitcher.
It is of a resonant metallic char-
acter and, when well marked almost
certainly indicates Pneumoth-
orax with pulmonary fistula,
when not distinctively defined it
is a symptom of a large cavity
which is almost always tuberculous,
Alterations by abnormal sounds;

Friction sounds, these sounds are only heard in certain pathological conditions of the pleura the reflections of which in a state of health glides smoothly and quietly over each other. The condition necessary to produce them are asperities in one or both those reflections, which gliding over each other give the sensation which may be perceived by the hand applied or even sometimes by the patient, it is analogous to the sound produced by the rumpling of parchment, and presents variations in intensity, which have suggested its division into the soft or rasping, and the rough grating or scraping friction sounds, The former,

probably dependent on slight asperities, which rub against each other in the elevation and depression of the ribs, occurring in Pleurisy in the forming stage, or tubercles of the chest, the latter dependent on thick false membranes without adhesions in pleurisy at the period of plastic exudation or absorption. Friction sounds are heard in Emphysema and also in Chronic Pneumonia towards the decline. It is almost always heard in inspiration at least with most distinctness in that movement.

Rales, Ratches, or Rattles.

Besides the simple sounds of respiration there are others generated by the mixture of air and a liquid,