

ON,

## MELANOSIS.

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(Read 7th May 1823.)

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“ Morbus informis, horrendus truculentus, niger.”

*Incerti Auctoris.*

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ON the 11th October 1822, we observed in a horse the disease termed Melanosis, developed to a remarkable degree. The colour of the animal was grey, inclining to white, and, from its emaciation, it seemed to have suffered under the influence of a disease of long standing. During life, we noticed, under the root of the tail, and in the neighbourhood of the rectum, a number of tumours of different sizes, hard, but moveable; and, under the delicate mucous membrane of the verge of the anus, they were seen to be of a deep black colour. On the left buttock we felt an enormous mass of the same kind of matter, immediately under the skin,

but connected pretty firmly with parts deeper seated. In the centre of this mass there existed an ulcerated opening, of the size of a sixpence, from which a fetid pus could be squeezed, in no great quantity, and mixed with small fragments of the matter of melanosia. The cavity of the abscess could not be detected by any external examination, as there was no fluctuation perceptible. Of the tumours in the neighbourhood of the anus, some had contracted adhesions to the skin, others were free; they varied in size, some being as small as peas, while others had attained the bigness of a Spanish nut. At no other part of the body were similar tumours noticed in the subcutaneous cellular texture, but, on dissection of the animal, great masses of them were found in other places. There were many seated at the root of the neck, on the right side, corresponding to the subclavian region in man, partly in the cellular substance lying between the muscles, and partly in the very substance of these latter. There were a few near the base of the scapula, under the panniculus carnosus. Some were found in the groin, on the same side, in the seat of the superficial absorbent glands. We noticed one large mass, of the shape and size of an orange, between the sixth and seventh ribs of the right side, which had originated in the substance of the intercostal muscles, and had increased inwardly, so as to raise the pleura from the subjacent bone and muscular strata. The peritonæum had melanose matter lying upon it in streaks at that part where, leaving

the bladder and rectum, it gives a covering to the last lumbar vertebra. The pleura in several places was similarly affected, and chiefly where it forms the mediastinum, and gives a covering to the pericardium. From near the termination of the aorta, down the lumbar region of the left side, into the pelvis by the side of the rectum, and out of it by the exterior aperture, there extended an immense chain, beginning above by one or two small insulated tumours, situated on the aorta, gradually increasing in bulk, till, at last, the black matter formed near the anus masses as large as a child's head. From the anal region, the disease appeared to have spread into the muscles of the buttock. Such were the situations in which this curious disease was found, the substance of all the viscera being quite healthy.

After a careful examination, we were satisfied that the large masses were a congeries of smaller ones of different sizes. They were each surrounded by a cyst of condensed cellular membrane, varying in thickness, but, generally speaking, remarkably firm. The cysts did not communicate, but seemed merely to have contracted adhesions with each other, and thus to have formed the large masses. The size of the individual cysts was various, some being no larger than peas, others as large as an apple, and of all intermediate magnitudes. This description applies only to the melanosis found in the cellular membrane, for the investing cyst of that observed in the muscular substance was considerably thinner, and,

in some places, could hardly be detected. The tumours, when cut into, were all of a deep black colour, like the pigmentum nigrum, or China ink. As to their consistence, most of them were as hard as cheese, while others were softer, and could easily be torn with the fingers. The black colour was uniform every where, and did not exhibit any white bands, or striæ, as are seen in tumours of a scirrhous nature. The vessels in their vicinity were not enlarged, and no signs of any active process going on could be observed. Nerves were seen, sometimes running over the surface, sometimes traversing the very substance of the black masses, but they had undergone no kind of alteration. The muscular texture itself was unchanged, and seemed merely separated in its fibres, and expanded, as occurs when considerable tumours are situated below a muscle; and, even when the very black matter was lodged in this texture itself, the fibres could still be traced unchanged. The pus seen to be lodged in the buttock, and already described in part, was found to be furnished, not from a large cavity, as had been suspected, but from two or three abscesses, about the size of a walnut, seated a little below the skin, and in a muscle affected with the black disease. The melanose matter in the neighbourhood of them was much softer than elsewhere; and we noticed that small grains of it were mixed with the pus secreted. The muscular fibres, also, near the purulent cysts, had undergone a change, having become extremely hard, of a greyish

colour, and, upon the whole, not unlike the muscular coat of the stomach, when that organ is affected with true scirrhus.

On the pleura and peritonæum, the disposition of the melanosis was somewhat different. It was effused on the surface of these membranes, not in round masses, but in streaks and patches. There seemed to have taken place on their surface a formation of cellular tissue, into which the black matter appeared to have been poured out, for it could be scraped off, and the serous coat was still left smooth and entire. The matter, too, was much softer, so as to be semifluid: the membranes upon which it was formed bore no traces of vascularity.

We have thought proper to lay this case before the Society, because we think it well calculated to convey a general idea of melanosis, even in the human subject. The striking appearances, as above recorded, are often met with in horses, constituting a peculiar disease, to which the French Veterinary Surgeons have given the name of Charbon, or Maladie charbonneuse. We have repeatedly had opportunities of observing it in these animals, and those of white or grey colour seem to be attacked by preference; a fact that has been noticed by all writers. The description we have given will be found to apply to almost all cases; but, of course, numerous varieties as to the seat and degree of the affection will present themselves. We venture to assert, that rarely, if ever, will the organic structures of the body be found degenerated, or convert-

ed into melanosis; and, commonly, the tumours, wherever situated, will be found to afford evidence of their being a peculiar new formation. In one instance, in a horse, melanosis existed under the periosteum of the os ilium, and formed a tumour as large as a man's fist, but the bone was in no respect diseased or altered from the natural state \*. Before concluding our remarks on this subject, we may be permitted to observe, that it were to be wished the Veterinary Surgeons of this country would make some inquiry into this matter, since they could not fail to throw considerable light on the corresponding affection in man.

In the human subject, we occasionally find the disease equally well marked in its characters, and equally independent of other alterations of structure. In the year 1821, a woman was brought into the Pavilions of the School of Medicine in Paris, whose body we had an opportunity of examining, along with M. Breschet, and Professor Meckel. In the right groin, there was an ulcerated surface about as large as a crown-piece, the bottom of which consisted of a pultaceous substance, of the colour of china-ink, and of the consistence of cream at the surface, but much firmer below, where it was in contact with the cellular tissue. The

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\* Dr Monro informs me, upon the authority of an eminent Veterinary Surgeon, that melanosis is rarely, or never, seen in the horses of this country, but that it was exceedingly common in the cavalry regiments during the whole of the Spanish campaigns.

edges were irregular, not everted, nor thickened, and pale, and the sore was totally without fetor; a state sufficiently indicative that it was not a mere sloughing sore, as, judging from external appearances, one might have imagined. There were in its neighbourhood a number of small, hard, round tumours, evidently consisting of the matter of melanosis, since that peculiar colour was discernible through the skin. The labia pudendi and nymphæ also had one or two tumours situated immediately under their cuticular lining. On laying open the abdomen, we found a distinct chain of melanosic bodies, extending from the groin up towards the diaphragm, in the course of the iliac vessels. They were of different sizes, from that of an orange-seed to that of a walnut; some of them were globular, others ovoid, and all of them, as in the horse, were composed of a pretty firm cyst, containing a deep black-coloured matter of various degrees of consistence. We were forcibly struck, on observing that the peritonæum was in no respect altered; that the cellular and muscular tissues were in the healthy state; and that there were no appearances of vascularity, either arterial or venous, as might have been expected, had it been a fungoid malignant disease. As it was the first well marked specimen we had an opportunity of observing, we concluded, from the shape, size, and situation of the tumours, that it was a case of degeneration of the lymphatic absorbent glands; but subsequent cases have convinced us, that these were really morbid

structures of new formation, occurring accidentally in the seat, and, from the nature of their cyst, imitating the form of these bodies. In this observation we paid particular attention to the state of the ulcer of the groin, with a view to obtain a knowledge of the pathological changes incidental to the disease; but our conclusions were all of the negative kind. It was not fungus hæmatodes, for there was no fungus to be seen, nor any appearance of hæmorrhage; it was not a slough, for there was no fætor; nor was it a malignant ulcer, for there were no marks of great vascularity, as commonly occurs in tumours of this description. We were, in fact, forced into the hypothesis, that the skin had gradually thinned and given way, and a peculiar absorptive process had taken place; but this is mere conjecture. The want of precise information is the more to be regretted, as this case furnishes us the only example with which we are acquainted, where the melanose tumours had actually made their way to the surface.

But by far the best specimen of the disease we have either met with or read of, occurred here lately in the clinical practice of Dr Home, by whose kind permission, and that of the Managers of the Royal Infirmary, we are enabled to present an account of it to the Society.

On the 18th of March last, John Houston, aged fifty-one, a shoemaker, complained of pretty severe symptoms of pleurisy, for which he was blooded, blistered, and purged, with considerable



relief. Up to the 23d, the symptoms diminished daily, though the cough continued ; but this latter symptom also subsided in a few days under the use of purgatives, and mucilaginous mixture with pægoric. The 28th, a hæmorrhoidal affection supervened, that yielded on the 30th to the application of leeches. April 1st, he complained only of debility, for which generous diet with white wine was ordered ; but he died in the course of the night.

We beg leave to call the especial attention of the Society to this case, as bearing upon a point of doctrine we shall have occasion to enlarge upon in the course of this paper. Here was a man submitted daily to the inspection of a physician of long experience, and acknowledged discernment, in the course of clinical duty, and under the eyes of intelligent pupils ; yet, who exhibited no peculiar symptoms that could have led to the suspicion of deep seated internal disorganization. In the course of the spring 1822, Houston laboured under a severe affection of the right eye, attended with headache and pain of the orbit, for which extirpation was deemed necessary. Since the operation, the patient remained free from any painful feelings referable to that organ.

On examination of the body thirty hours after death, the first incision exposed a number of black globular bodies, lying in the cellular tissue between the pectoral muscle, and third and fourth ribs of the left side, about the size of peas, and some of them adhering to the periosteum. The substance of the

rib itself was completely black, as was also the sternal third of the clavicle of the same side; but these bones were in no other way altered from their natural state. Upon opening the chest, the pleura was found studded with similar tumours, here and there insulated, but in general aggregated, so as to resemble clusters of purple grapes. The last mentioned phenomenon was particularly remarkable on the right lung, along the bodies of the vertebræ on both sides, and upon the upper surface of the diaphragm on the left. Many of the tumours were hardly raised above the pleura, but others had long slender necks, so that they were like polypi. In colour, most of them were jet black, others of a deep purple, or even reddish hue, while a third sort seemed to contain portions of a peculiar white colour, blended with black. The lungs were extensively beset with these tumours; and several of an exceedingly small size were detected under the mucous membrane of the bronchiæ. The pericardium, and the very substance of the heart were studded with melanose bodies. As the cause of the symptoms under which the patient laboured during life, upwards of three pounds of fluid were found in the cavities of the pleura, and there was a thin pellicle of albuminous matter covering the surface of the lungs. In the abdomen, the liver, spleen, kidneys, omentum, and peritoneum in different places, were affected in the same manner; but the tumours in the liver contained a considerable portion of white cerebriform matter. To shorten

the description, perhaps already too long, we may state in general, that similar tumours were found connected with the internal table of the skull, where they had formed for themselves little excavations, in the subcutaneous cellular substance of the thorax and abdomen, so as to be discernible through the integuments; and, lastly, among the fibres of the intercostal muscles. Doubtless, had the examination been pushed further, we might have found the disease in other organs, but from peculiar circumstances, it was impossible for us to render the dissection complete.

This is the proper place for noticing the appearances found in the eye at the time it was operated on. The situation of the vitreous humour was completely occupied by a black looking fibrous mass, pushing the choroid coat and retina into the posterior chamber. These tunics had undergone no sort of alteration, and the sclerotica was every where entire. The cornea had sloughed, but this was to be attributed to the general distension of the globe, and by no means to any alteration in the texture of the tunic, since it was nowhere in contact with the morbid matter lodged behind the iris. There was a considerable mass of black matter lodged posteriorly to the globe, and deep in the orbit, apparently in the fat and cellular tissue surrounding the optic nerve. When we examined the orbit after death, we observed that the disease had been reproduced in its old situation, and at the expence of the cellular tissue; for the muscles

and nerves, so far as we could trace them, had undergone no alteration.

As to the tumours found in the different parts of the body, they possessed certain general features. They consisted of a cyst separated by a loose cellular tissue from the surrounding textures, and containing the peculiar black matter of the disease in different states of consistence. In some pretty large tumours the matter was nearly solid, and in others, those exceedingly small, nearly fluid. No external differences were to be observed in these two species; there was no regular gradation in size; no difference in vascularity, that could have led us to suppose they were different states of the same disease, or in different states of development. In the liver only a remarkable variety was noticed. The tumours here were as large as chesnuts, some of them white, consisting of cerebriform matter, others were pure melanose, and others again contained melanose and cerebriform matter together; but all of them had cysts tolerably distinct from the surrounding hepatic texture.

Dr Alison, the distinguished Professor of the Theory of Medicine, has kindly permitted us to communicate to the Society the following case, which affords another excellent example of simple melanos. — Rachael Bruce, aged forty-two, was admitted into the Royal Infirmary on the 3d of June. She complained of severe pains shooting down from the loins to the inferior extremities, and round the abdomen. She had similar pains in the right shoul-

der and arms, increased in the night-time, or by motion. She had become weak and emaciated since her complaints began, and was liable to shivering, followed by flushing and profuse perspiration, which increased her debility without relieving her pains. The abdomen was swelled, but did not fluctuate on percussion, and the distension varied in degree at different hours in the day. She had thirst, with scanty high coloured urine, not coagulating by heat. The integuments of the abdomen were flaccid; and a hard, moveable, tumour could be felt in the iliac and hypogastric regions. She was also liable to paroxysms of dyspnœa during the night-time. Her appetite was impaired. She had bad taste of mouth, with white and dry tongue. Her bowels were reported to be regular, but she had occasional nausea. Sleep deficient.

She stated her complaints, which were of five or six weeks standing, to have commenced after exposure to cold, with shivering, and with pain and stiffness of the loins, and of the hip and knee joints of the left side. The enlargement and induration of the abdomen had been remarked during the last fortnight only.

For these symptoms, the treatment at first instituted consisted of leeches, fomentations, anodynes, and particularly Dover's powder. Tympanitis occurred on the 7th, for which pills of calomel and opium were given, and continued till the 9th, when they were stopped, in consequence of the tenderness of the mouth. A day or two afterwards, mercurial

pills were substituted, shortly followed by the usual effects of mercury ; but no evident relief ensued, and the pains of back and lower extremities, with distension of the abdomen, not only continued unabated, but were even aggravated by the supervention of globus hystericus. Up to the 20th there was no material alteration in the symptoms. Purgatives, and chiefly castor-oil, were administered to correct the irregularity of the bowels. On the 21st there were found several small painful tumours on the integuments of the abdomen, which she declared to have existed from the commencement of her illness. She was this day examined by a skilful accoucheur, who reported the tumour felt in the hypogastric region to be unconnected with the uterus. On the 24th, copious sweating, with involuntary discharge of urine, was added to the other symptoms. 1st July, Great debility supervened, with decided hectic fever, and tendency to sloughing of the sacrum. On the evening of the 7th she had vomiting of a dark coloured matter, and died soon after. The treatment in the last days of her life was merely palliative, and consisted of laxatives, alternating with opiates.

*Sectio Cadaveris.*—There was great general emaciation, and several small dark-coloured tumours, that had been visible during life, were observed distributed over the body. These tumours were largest and most numerous in the mammae. They were imbedded in the cellular substance ; were encysted ;

and when cut into, were found to contain a deep black coloured matter, of soft and pulpy consistence. Within the abdomen, most of the cellular and adipose textures had disappeared. The peritoneum lining the parietes was of a blackish colour, and the black matter was irregularly deposited in striæ, and spots upon the inner side of the membrane, which had lost much of its usual transparency. The omentum presented a similar appearance, and several globular shining tumours of a black colour were appended to it, which, when cut into, poured out a similarly coloured fluid. Between the folds of the mesentery, and beneath the serous membrane of the intestines, there were numerous black spots and small tumours. There was some unusual vascularity of the mesentery, and many small vessels containing red blood could be observed upon the portions which formed cysts to the black tubercles. The ovaria were many times of the natural size, and were seated in front of the uterus, occupying also the lateral iliac regions. Their external surface had a dark, shining, lobulated, appearance, with numerous ramifications of vessels upon the peritoneal covering, beneath which black matter was irregularly deposited in spots, giving a mottled appearance to the whole. When cut into, their substance was uniformly black. The cellular tissue still retained its consistence, and vessels containing red coagulated blood could be traced through it. Several distinct cysts or cavities were found in their substance, which poured out a black liquid when opened. The kid-

neys, liver, spleen, and the mucous coat of the stomach and intestines, were all free from black matter, although it was deposited in the cellular tissue connected with these organs. On removing the sternum and skull-cap, it was observed that the whole texture of the sternum, the anterior portion of the ribs, and great part of the parietal and occipital bones, were black, more brittle, and of softer consistence than natural, but without enlargement or ulceration. The periosteum was natural, except that in some places there was deposition of black matter beneath it. The whole inner table of the skull, when removed from the dura mater, was of a darker hue than natural, and, in some places, where the black matter was deposited in irregular patches on the bone, there were corresponding stains on the surface of the dura mater. The substance of the brain was healthy, but several minute striæ of dark matter were observed in the course of the ramification of the small vessels, on the membranous coverings of the base of the brain and choroid plexus. A large quantity of serum was effused under the arachnoid membrane, and in the ventricles. Within the thorax, a number of small black tubercles similar to those in the integuments, were situated on the surface of the pleura costalis, and others of larger size were attached to the surface of the lungs. All of them appeared enveloped in a slender cyst. The substance of the lungs was dark, and some minute tubercles were imbedded in it. Similar spots were noticed beneath the pericardial coverings of



the heart, which contained some coagulated blood in its cavities, and was softer than usual.

Having now laid these several cases before the Society, we may be permitted to make a few observations upon some general phenomena which the disease presents. And, omitting, till another opportunity, the mention of it in mucous membranes, where it assumes the form of black secretion, and, passing over its combination with cerebriform degenerations and scrofulous tubercle, we shall proceed to offer some remarks on the disease in general, and attempt, with all humility, to form some conjecture as to its real nature.

Melanosis is commonly considered by those who have paid some attention to it, as partaking of the nature of cancer and fungus hæmatodes, and, like them, to be invariably fatal; but minute examination of many specimens has convinced us, for the present at least, that these diseases are quite of a different nature, though, doubtless, they may sometimes be blended together. To illustrate this opinion, we may be allowed to remind the Society, that scirrhous attacks chiefly glandular structures, and of them those only which may have been in a state of inflammation; while the hæmato-fungoid tumour attacks every kind of structure. They both of them begin in one definite point, gradually extend their ravages in every direction, convert all the tissues in their vicinity, by a kind of assimilative process, into their own matter; and, finally, at the

end of a shorter or longer period, prove invariably fatal, either by extensive sloughing, profuse hæmorrhage, great constitutional irritation, or by a combination of all these. In their course, they are generally attended with severe lancinating pains, peculiarly agonizing, and with great increase of vascular action, both arterial and venous. Now, it is worthy of notice, that in the several well marked cases that have fallen under our observation, none of these phenomena were seen. The matter of melanosis was constantly found in a regular cyst, a feature which completely distinguishes it from the other malignant degenerations. Indeed, this may be considered as one of the distinctive characters of melanosis, since in the liver and kidney, where so little cellular tissue exists, still the cyst was entire, and the surrounding parenchymatous substance unaltered. Again, we have seen no example where it could be truly affirmed that the textures of the body had undergone any alteration, in consequence of the ravages of the disease. The bones, for instance, were of a deep black colour, but otherwise unaltered. The muscles had their fibres separated and expanded by the tumours, but the fibres themselves were entire, and possessed their natural colour and tenacity. The parenchymatous viscera were not altered in texture; the substance adjacent to the cyst was as healthy as the rest of the organ. Of vascularity there were no traces, not even in the pleura or peritoneum, where bloodvessels might so easily have been discerned. And, lastly, that the disease

is not attended with pain, is clearly demonstrated by the case of Dr Home's patient. What this man suffered before the extirpation of the eye-ball, must be attributed, not to the malignant nature of the affection, but to the distension of the tunics, since, after the operation, he ceased to complain of pain, though the disease had been reproduced, as was found on examination after death. During his residence in the hospital he suffered no particular constitutional irritation, and made no complaint not referable to the pleurisy under which he undoubtedly laboured.

These considerations, then, have induced us to believe, for the present at least, that melanosis, in its simple form, is of a nature quite distinct from cancer, both in its seat, symptoms, progress, and anatomical characters; and with this negative kind of knowledge, we fear we must rest satisfied, till it shall have excited more generally, and for a longer time, the attention of the medical world. Laennec, who has contributed so much to the increase of pathological knowledge, has concluded, from his observations, that melanosis has two stages like cancer, a stage of crudity, and of *ramollissement*; but, if it be permitted to persons of so limited experience as we are, we would venture to suggest, that what he calls *ramollissement* is nothing but melanosis originally secreted in a more fluid form than common. If it were true, as he supposes, that the matter, in proportion as it is more elaborated, becomes softer, we should expect the larger the

mass the less consistence it should possess; but, as far as our observations go, the reverse seems rather to be the case, the smaller tumours being the softest, and often as fluid as cream. From another opinion of M. Laennec we must dissent, in as far at least as melanosis is concerned. He states as a general proposition, that those morbid structures which are without analogy in the healthy state of the body, have all a tendency to soften and break down, that they are all of them attended with great constitutional irritation, and that the effort of nature, though often abortive, is always to eliminate them from the body. Melanosis must form an exception to this rule. We have seen melanose tumour in the substance of the heart itself, yet no unusual constitutional affection ensued; and the want of vascular action has convinced us, that nature is at least wholly inactive while they are present, that is, she institutes no process for their removal. Melanosis, therefore, in its simple state, will form a disease entirely different from any with which we are acquainted; differing from cancer in the points above specified, and from scrofulous tubercles by shewing no tendency to suppuration; and it certainly can never be classed as one of the products of inflammation, either acute or chronic. It is an affection *sui generis*, of which it must be said, in the present state of our knowledge, either that it is a perfectly innoxious secretion, or that we are unacquainted with its real nature. For our parts, if we incline to the former conclusion, it is

because we think ourselves warranted to do so from the cases we have seen, fully prepared, however, to retract, or modify our opinion, as soon as a more enlarged experience shall have shewn us our inaccuracy.

Having now concluded what we have to say upon simple melanosis, we ought to proceed to consider of its combinations, but we must defer this part of the subject till another opportunity. We may, however, state here to the Society, that we hope to be able to demonstrate the identity between the black secretions of mucous membranes and melanosis. We shall shew, that, when in combination with the cerebriform structure, this latter disease possesses no greater than usual malignity; and lastly, that nature even employs melanosis as the means of repairing the ravages of other affections, as we think occasionally takes place in some phthisical ulcers and fistulous sinuses of long standing. At the same time, we shall endeavour to give some account of the prognosis that may be formed, since, till some remedy, hitherto sought in vain, shall have been discovered, thus far only can the physician go, and no farther.