DISEASES OF THE FOOT

BUTTRESS FOOT

PYRAMIDAL DISEASE, BUTRESS FOOT, OR LOW RINGBONE

A condition of periostitis and ostitis in the region of the pyramidal process of the os pedis, usually preceded, but sometimes followed, by fracture of the process, and characterized by deformity of the hoof and an alteration in the normal angle of the joint.

In the majority of cases buttress foot is brought about by fracture of the pyramidal process. Thus, although distinct evidence of such is nearly always wanting, we may assume that the original cause is violent injury to the part in question. Properly, therefore, one would say that this condition should be described under Fractures of the Os Pedis.

It appears, however, that other cases of the kind arise in which fracture is altogether absent, or in which it is plainly seen to be subsequent to the diseased processes in the bone. For that reason, and also for the reason that the condition has come to be known by the name we have given, we give it special mention.

Symptoms and Diagnosis

Even when the condition arises as the result of fracture, the ordinary manifestations of such a lesion are absent. By reason of the situation of the parts within the hoof we are unable to detect crepitation, and the resulting lameness is perhaps — in fact, nearly always is — neglected until such time as any heat or swelling caused by the injury has disappeared, in which case we are denied what evidence we might have obtained from that.

All that is presented is lameness, and lameness that is at times excessive. But with the lameness there is nothing distinctive. The foot is tender on percussion, and the gait suggestive of foot lameness, that is all. We are unable, therefore, to make an exact diagnosis, and the condition goes for some time undetected.

Later, however, changes in the form of the hoof and the coronet begin to appear. The skin of the coronet, especially in the region of the toe, becomes more or less thickened and indurated, and the same remark applies to the subcutaneous tissues.

The most marked change, however, is the alteration in the shape of the hoof. The wall protrudes at the toe in a manner that has been termed 'buttress-like,' and has given to the condition one of its names. This, of course, entirely alters the contour of the horny box. From being more or less U-shaped, it approaches nearer the formation of the letter V, the point of the V being at the toe.

In the later stages the coronary enlargement is plainly seen to be due to an extensive formation of bone. It is, in fact, a reparative callus, and the reason it reaches so large a size is probably to be accounted for by the pull of the extensor pedis upon the detached pyramidal

process.

As might be expected, this displacement of the fractured portion, with its effect of giving greater length to the extensor pedis, leads to a backward displacement of the os coronæ upon the pedal bone. As a result there is a marked depression at the coronet, the depression being heightened in effect by the exostosis in front. Pyramidal disease is, as a rule, met with in the hind-feet, but occurs also in the fore.

CONTRACTED FOOT

By the term contracted foot, otherwise known as hoof-bound, is indicated a condition in which the foot, more especially the posterior half of it, is, or becomes, narrower from side to side than is normal.

It must be borne in mind, however, that certain breeds of horses have normally a foot which nearer approaches the oval than the circular in form, and that a narrow foot is not necessarily a contracted foot.

The contraction may be bilateral when affecting both heels of the same foot and extending to the quarters, or unilateral when the inside or outside heel only is affected.

In some cases contraction is confined to one foot, while in others it may be noticed equally bad in both. It is a matter of common knowledge that contraction is usually seen in the fore-feet, while the hind seldom or never suffer from it, a fact which, to our minds, seems difficult of adequate explanation.

Zundel explains this by stating that contraction is principally observed in the fore-feet, by reason of the fact that when lameness arises from it alteration in action will more readily be detected in front than behind.

Percival, on the other hand, suggests that the greater expansive power of the hind-foot, by reason of the impetus of its action, is able to overcome any influence operating towards contraction. It may be, however, that given a cause for contraction, such as the removal of the frog's counter-pressure with the ground by faulty shoeing or excessive paring, the fore-feet, by reason of their being called upon to bear the greater part of the body-weight, are the first to suffer.

Flat feet with weak heels are those most frequently affected, and, as we have already intimated, the condition may exist with or without other disease of the foot.

Depending upon its degree, contracted foot may vary from a simple abnormality, non-inflammatory and painless, to a condition in which it becomes a veritable disease, giving rise to a bad form of lameness, and bringing about a withered and sometimes discharging and

cankerous affection of the frog.

CONTRACTED FOOT SYMPTOMS

In its early stages contraction is difficult of detection, and where both feet are affected may for some time go unsuspected. With only one foot undergoing change, the early stages may the more readily be marked, for in this case comparison with the other and sound foot will at once reveal the alteration in shape. If lameness in the suspected foot is present, then any lingering doubt will be quickly dispelled.

When far advanced, contraction offers signs that cannot well be missed. The converging of the heels narrows the V-shaped indentation in the sole for the reception of the frog. As a consequence of this, the frog itself becomes atrophied by reason of the continual pressure exerted upon it by the ingrowing horn of the wall and the bars. The median and lateral lacunae of this organ, from being fairly broad and open channels, become pressed into mere crack-like openings.

As the case goes on, the lateral branches of the frog entirely disappear, and all that is left of the organ is a remnant of its body or cushion, now wedged in tightly between the bars. Following upon the disappearance of the frog, we find that the bars are in contact, or, in some cases, actually overlapping each other at their posterior extremities.

At this stage, perhaps, the whole condition has become aggravated by a foul discharge from the place originally occupied by the frog, and the foot, especially in the region of the heels, has become hot and tender—really a form of local and subacute laminitis.

The long-continued inflammation, although only of a low type, renders the horn of the hoof hard and dry, and only with difficulty will the ordinary foot instruments cut it. This in its turn leads to cracks and fissures in various places, but more especially in the bars and what is left of the frog. Often, too, cracks will appear in the horn of the quarters, and a troublesome and incurable form of sand-crack results.

An animal with contraction advanced as far as this, especially if confined to one foot, goes unmistakably lame. With both feet affected, he ordinarily starts out from the stable in a manner that is commonly called 'groggy.' In other words, the gait is uncertain, and feeling; and stumbling is frequent.

SAND TRACK

Sand-crack is a solution of continuity of the horn of the foot, occurring usually in the wall, and following the direction of the horn fibres.

It is usual to classify sand-cracks according to:

1.) Their Position. — Toe-crack when occurring in the middle line of the horn of the toe, and quarter-crack when occurring in the horn of the quarters.

Sand-crack of the frog and sand-crack of the sole may also each be met with. They are, however, of rare occurrence, and are seldom serious enough to merit special attention.

The toe-crack is met with more often in the hind-foot than in the fore, while the quarter-crack more often than not makes its appearance in the fore-foot, and is there, as a rule, confined to the inner side. The reasons for these positions being so affected we shall deal with when treating of the causes of sand-crack in general. It is interesting to note that the portions of wall known as inside and outside toe are seldom affected.

2.) Their Length. — Complete when they extend from the coronary margin of the wall to its wearing edge; Incomplete when not so extensive.

3.) Their Severity. — Simple when they occur in the horn only, and do not implicate the sensitive structures beneath; Complicated when deep enough to allow of laceration and subsequent inflammation of the keratogenous membrane. Such complications may vary from a simple inflammation set up by laceration and irritation of the sensitive structures by particles of dirt and grit that have gained entrance through the crack, to other and more serious changes in the shape of the formation of pus, hæmorrhage from the laminal vessels, caries of the os pedis, or the development of a tumour-like growth of horn on the inner surface of the wall known as a keraphyllocele.

4.) Their Duration. — Recent when newly formed; old when of long standing.

5.) Their Starting-point. — This last distinction we make ourselves, and, referring to cracks of the wall, term them high when commencing from the coronary margin, low when starting from the bearing surface.

CAUSES OF SAND-CRACK

We have already classified sand-crack as a disease arising from faulty conformation. Thus, in just so far as a predisposing build of body may be handed down from parent to offspring, we may regard sand-crack as hereditary. If we do so, however, we must afterwards make up our minds to sharply distinguish between the sand-crack plainly brought about by accidental cause, and that occurring as a result of hereditary evil conformation.

With regard to the latter, we need hardly say that feet with abnormally brittle horn are extremely liable. But with this, as with much other affection of the feet, we shall find it necessary to consider several causes acting in cooperation. In this case, for instance, given the brittle horn, it becomes necessary to further look for exciting causes of its fracture.

We will take conformation first. In the animal with turned-out toes a more than fair share of the body-weight is imposed on the horn of the inner quarter. Here, then, three causes exert their influence together: The horn is brittle; the wall of the inner quarter is thinner than that of the outer; additional weight is imposed upon it.

Take, again, the vice of contracted heels. Here, in the first place, we have a variety of causes tending to bring about the contraction. With the contraction, and its consequent pressure upon the sensitive structures in the region of the quarters and the frog, has arisen a low type of inflammation. The horn of the part has become dry and brittle. The exciting cause of its fracture is found in an excessive day's work upon a hard, dry road, with, perhaps, a suddenly-imposed improper distribution of weight, due to treading upon a loose stone, or a succession of such evil transfers of weight due to travelling upon a road that is rough in its whole extent.

An injury of the same character may also be sustained in various other ways—treads from other animals when working in pairs, accidental wounding with the stable-fork, blows of any kind, or a self-inflicted tread with the calkin of an opposite foot—each with the same result.

So far as causation is concerned, toe-crack stands in a class almost by itself. It is met with nearly always in a heavy animal in the hind-foot, and is directly attributable to the force exerted in starting a heavy load.

Unskillful shoeing also plays a part in the causation of sand-crack. Removal of the periople by excessive rasping of the wall is most certainly a predisposing cause. Cracks, or their starting-points, may also be caused by using too wide a shoe, or by the use of nails too large in the shank. Also, they may arise from unskillful fitting of the toe-clip, especially in the hind-foot of a heavy animal. It must be admitted, however, that the part shoeing plays in the causation of sand-crack is not a large one; far more depends upon the state of the horn and the animal's conformation than upon the exciting cause.

SYMPTOMS OF SAND-CRACK

In every case the fissure, or evidence of its commencement, is a diagnostic symptom. It is well to remember, however, that this may be easily overlooked, especially when the crack is one commencing at the coronary margin. The reason is this: Sand-cracks in this position often commence in the wall proper, and not in the periople. They may, in fact, be first observed as a fine separation of the horn fibres immediately beneath the perioplic covering.

A crack of this description may even show hæmorrhage, and have been in existence for some time, without the periople itself showing any lesion whatever. Thus, unless lameness is present, or a more than especially keen search is directed to the parts in question, the sand-crack goes undiscovered, until of greater dimensions.

Further, the fissure may be hidden, either accidentally or of set purpose. It may be covered by the hair, filled in and covered over with mud, or intentionally concealed by being 'stopped' with an artificial horn, with wax, or with gutta-percha, or, as is more common, be hidden by the lavish application of a greasy hoof-dressing.

In like manner the lameness from toe-crack also varies in degree with the rate of progression and the character of the travelling, though not to such a noticeable extent as in the lameness from quarter-crack. A greater variation may in this case be brought about by moving the animal on ascending and descending ground. Descending an incline, with a more than ordinary share of the body-weight thus thrown upon the heels, the lameness is most marked.

The reason would appear to be that the greater expansion of the wall of the heels thus brought about leads to a proportionate contraction of the wall at the toe, especially at the edges of the crack, thus causing undue pressure upon the exact spot of the wound in the sensitive structures. Ascending—the weight in this case transferred from the posterior to the anterior portion of the foot—the expansion of the heels becomes a contraction, with a corresponding lessening of the contraction at the toe and a distinct decrease in the lameness.

In the case of a deep but recent crack there is always more or less haemorrhage. This favours risk of infection of the lesion with pus-forming organisms, and so leads to a more or less pronounced lameness, a degree of swelling, heat and tenderness in the coronet above, and a certain amount of surgical fever.

Sand-crack of the toe always follows the direction of the horn fibres. That of the quarter, however, may on occasion run a course that is somewhat zigzag, first following the direction of the horn fibres for a short distance, then travelling in a horizontal direction, and finally continuing its course again in a line with the horn fibres, commonly at a point posterior to that at which it commenced.

FALSE QUARTER

False quarter is the term applied to that condition of the horn of the quarter in which, owing to disease or injury of the coronet, the wall is grown in a manner that is incomplete.

SYMPTOMS OF FALSE QUARTER

This condition of the foot appears as a gap or shallow indentation, narrow or wide, in the thickness of the wall, with its length in the direction of the horn fibres. By this we do not mean that the sensitive laminae are bared and exposed. Horn of a sort there is, and with this the sensitive structures are covered. Running down the centre of the incomplete horn is usually a narrow fissure marking the line of separation in the papillary layer of the coronary cushion, which, as we shall later see, is responsible for the malformation.

On either side of the indentation, as if wishing to aid further than ordinarily it should in bearing the body-weight, the horn takes on an increased growth, and stands above the level of the horn surrounding it. It may, as perhaps it really is, be regarded as a form of hypertrophy, brought about by the increased work that the loss of substance in the region of the false quarter puts upon it.

So long as the sensitive structures are protected the animal remains sound. Sometimes, however, from the effects of concussion or of the body-weight, a fissure appears in the narrow veneer of horn that covers them. Into this, which, of course, is but a form of sand-crack, gravel and dirt penetrate, and so set up inflammatory changes in the keratogenous membrane. As a result suppuration ensues, and the animal is lame.

CAUSES OF FALSE QUARTER

False quarter may result from any disease of the foot that involves destruction of a portion of the coronary cushion. It is from the papillae of this body that the horn tubules of the wall are secreted. Destruction of any portion of it necessarily results in a corresponding loss of horn in that position.

The disease occasioning this more often than any other is perhaps quittor. It may also result from suppurating corn, from a severe tread or overreach, or from the effects of a slowly progressing suppurating coronitis.