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Prepubic Tendon Rupture At Time of Parturition

RUSSELL J. BEAMER

We learned in Anatomy that the prepubic tendon is essentially the tendon of insertion of the two recti abdominis, but also furnishes attachment to the obliqui, the graciles, and the pectinei. It is attached to the anterior borders of the pelvic bones, including the iliopectineal eminence. It has the form of a very strong, thick band, with concave lateral borders which form the medial boundaries of the subcutaneous inguinal rings. Occasionally the prepubic tendon will rupture, resulting in a downward displacement of the abdominal viscera, with a backward displacement of the pubis.

The eventual lesion consists of a transverse rupture of the prepubian tendon immediately in front of the pubis, between the two abdominal rings. The rupture is usually complete and obliterates all tissue between the two openings. Its occurrence is limited, so far as known, to unipara; it is seen by far most frequently in the mare, and rarely in ruminants.

While working with Dr. J. S. Potter of Iowa City, Iowa, this summer, I was fortunate enough to see one of these cases in the field of practice. Arriving at the farm we found the patient to be an eight-year-old Percheron mare, in the later stages of pregnancy, and expected to foal within two or three days. The main noticeable symptom was an extensive edema of the abdominal floor, beginning just in front of the mammary gland and extending from the anterior pectoral region to the perineum. The mare was examined and the fetal membranes were found to be intact, signifying that the critical time of parturition was not yet at hand. As the mare seemed to be suffering no ill effects from her condition we decided to bide our time and let nature take its course. A visit was made the following day and the visceral displacement was found to be greatly increased. The skin was greatly stretched, and the milk glands were displaced downwards and forward. The patient seemed more restless and her movements were restricted to such locomotion as was necessary, marked by care and deliberation. This restriction of movement was no doubt due partly to the mechanical impediment of the edema, and also as a result of the pain. Upon examination the displaced gravid uterus was found to be exerting pressure on the neck of the bladder and making it impossible for the act of micturition to take place. The mare was immediately catheterized and it seemed to relieve some of her restlessness. The following day the mare seemed to be greatly distressed. The displaced viscera had stretched the abdominal muscles and skin to the point that they almost touched the ground. The mare stood with legs apart and head hanging down, showing frequently signs of labor and a slight uterine discharge. The patient was again examined and the time of parturition was found to be at hand. The fetus was removed with little difficulty and to our great surprise it was very much alive. Not at any time did the mare go down and the last we heard both the mare and foal were coming along nicely.

The causes of this condition, as far as determined, are:

1. The increased strain upon the abdominal floor caused by the presence of the gravid uterus, which represents at the close of pregnancy probably 30 to 40 per cent of the abdominal contents.

2. Degenerative changes in the tissues of the abdominal floor, including the prepubian tendon, closely associated with profuse edema of this region.

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energy, which depends upon the square of the velocity is directly proportional to the voltage and inversely proportional to the minimum wave length of the X-rays. This fact gives the equation:

$$\text{minimum wave length} = \frac{12336}{\text{voltage}}.$$  

From this relation it will be seen that 100 kilovolts (100,000 volts) will give a minimum wave length of 0.123 angstroms. The wave length of maximum intensity is about 1.5 times the minimum value or, in this case, about 0.18 angstroms. It will also be observed that very high voltages are capable of producing X-rays comparable in wave length with the gamma-rays of radium.

The unique penetrating properties of X-rays afforded an immediate practical application as a means of investigating the interior of objects opaque to ordinary light. It is not true, however, that all X-rays are highly penetrating. This property increases rapidly with decreasing wave length or with increasing voltage. Very long wave lengths (several angstroms) are strongly absorbed by air, even to the extent of fifty per cent in a distance of a few millimeters. The much shorter wavelengths (a few hundredths of an angstrom) are, on the other hand, able to penetrate several centimeters of steel.

For X-rays of a given wave length, absorption increases rapidly with increasing atomic number of the absorbing material. This property is in many cases a distinct advantage because in most substances to be examined composition varies more than density. In the case of animal tissues, for example, bone owes its comparative opacity for the most part to its calcium content and not to its greater density.

An understanding of the physiological effects of X-rays developed much more slowly and is yet far from complete. It is well known that in some case, as in the treatment of cancer for example, beneficial effects are obtained, but in general any unnecessary exposure to X-rays should be avoided. Lack of knowledge of the adverse physiological effects resulted in serious injury to many of the early X-ray investigators.

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**MIXER INITIATES FROSH**

A greased pole—a flag—and two scrapping classes. Thus the annual “Vet Mixer” ushered in this year’s student A.V.M.A. calendar.

At the word from President Sid Bjornson, the freshman and sophomore classes, lined up at each end of the Meat Lab rushed for the pole and for a full 15 minutes battled to see which class would retrieve the flag at the top. The pole, however, broke loose from its mooring and the fray was then declared officially ended. But class spirit over-rote the official halt, and free-for-alls continued for awhile.

Approximately 100 per cent of the student members were in attendance. Drs. Foust and Benbrook addressed the group for a short time at the beginning of the meeting.

“We have been criticized for sticking too closely together—but such criticism is in reality a compliment,” Dr. Benbrook stated. “However,” he went on, “we have been inclined to think too little of our profession in the light of its true function—that of protecting the livestock industry.”

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**Prepubic Tendon . . . .**

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3. Vary rarely there is a definite history of violence.

Usually the prognosis of complete rupture of the prepubian tendon is very grave, since most mares, along with their foals, perish before the conclusion of the pregnancy during which the rupture occurs. If the pregnancy existing at the time of the accident is safely determined, the animal may thereafter breed without danger or difficulty, but is so unsightly that her value for this purpose is seriously diminished. She may do ordinary slow work, but here the unsightliness becomes even more serious and few persons are willing to use such an animal.