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### INCISIONAL COMPLICATIONS AFTER LAPAROTOMY

Incisional complications in horses after laparotomy not only have a negative impact on survival but create significant discomfort to the horse, increase hospital time and greatly increase overall cost of treatment. Incisional complications may be limited to incisional oedema or may progress to cellulitis, infection with suppuration and ultimately dehiscence of the surgical wound which presents a potentially fatal complication. Incisional infection and incisional hernia formation are the principal serious complications to be expected after laparotomy in horses.

Infection of the laparotomy wound is the most common complication with a reported prevalence ranging widely from 7,4% to 37%.<sup>1</sup>

Suppuration and infection usually occurs within 3-5 days post-operatively but onset can be as late as 10 days or more after surgery. Often horses show mild abdominal discomfort with fever and tender to painful incisional swelling prior to onset of incisional drainage or suppuration. Frequently, fever and discomfort subside once drainage is established. Duration of drainage varies from several days to weeks.

Over the past 30 years several reports have tried to identify risk factors associated with incisional infections.<sup>1,2,3,4</sup> Overall these reports have produced conflicting results. While some have identified resections or enterotomies to be associated with an increased risk of infection, other studies failed to do so. One study identified the near-far-far-near suture pattern as a risk factor.<sup>3</sup> Other factors such as surgery time are known to increase the risk for incisional complications. Surgical site preparation, draping techniques, and surgical technique have all been incriminated to affect post-operative incisional complications. However, until more convincing evidence about potential risk factors is presented, surgeons must rely on their own catalogue of measures to minimize surgical site infection after laparotomy.

Most incisional infections can be managed successfully by promotion of drainage, flushing subcutaneous pockets and other means of wound management. More recently closed wound drainage systems (NPWT, V.A.C.®) applying negative pressure over the wound have been introduced and are used more frequently. These systems promote drainage of suppurative fluid, increase blood flow and tissue oxygenation and enhance granulation tissue formation.

The occurrence of hernia formation after incisional infection ranges 6% to 16% among published reports.<sup>1,3</sup>

Incisional hernia formation may not be evident in all cases once suppuration has subsided and epithelisation has occurred. It may take several weeks until all oedema has resolved and palpation allows for identification of defects in the linea alba. The size and width of incisional hernias may vary greatly. I usually recommend to wait for four to six months until a decision should be made whether hernia repair should be attempted or not. In many cases, the size of the hernia decreases greatly with exercise presumably because the abdominal musculature undergoes significant conditioning with increased exercise. Despite the concerns of riders and owners, many hernias do not interfere with sporting activities, in particular not with show jumping and dressage. They may be unacceptable for cosmetic reasons however.

In any case, surgical repair should not be attempted until 6 months after the initial laparotomy to allow for sufficient maturation of the fibrous tissue along the disrupted incisional scar.

In preparation for herniorrhaphy, the nutritional management of the horse should be changed such that the amount of intestinal contents is greatly reduced in order to facilitate primary closure and to decrease tension on the sutures. In the author's opinion, herniorrhaphy with the usage of mesh implants should be attempted if at all possible.

#### Bibliography

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