Potential complications associated with castration include hemorrhage, excessive swelling or edema, infection, poor wound healing, and failure. Use of the Burdizzo clamp may be associated with a higher failure rate.

**Hemorrhage:**

Risk of hemorrhage is greater after surgical castration including bleeding, swelling, infection, and death.

**Disease:**

Castration-associated immunosuppression may increase risks of local or systemic disease after the procedure. Surgical castration causes increased haptoglobin and decreased gamma interferon production. Haptoglobin exerts a suppressive effect on lymphocyte function, and reduction of gamma-interferon results in suppression of the immune system’s cell-mediated immunity and response to antigens. Administration of ketoprofen, either alone or in combination with local administration of lidocaine, decreased haptoglobin concentrations and prevented suppression of the gamma-interferon response; therefore, administration of ketoprofen reduced immunosuppression associated with surgical castration. In contrast, administration of xylazine in combination with butorphanol had no effect on haptoglobin concentrations after surgical castration. The wound associated with surgical castration is at risk of infection. Clostridial organisms, ubiquitous in soil, may enter the wound and result in local or systemic infection; clostridial vaccination prior to castration is recommended.

**Performance:**

Cattle may demonstrate reduced feed intake and average daily gain (ADG) for a period after castration. Delaying castration conveys no benefit in terms of carcass weight and taste panels suggest that consumers prefer beef from cattle that are castrated at an early age. Castrating beef calves immediately after transport, however, may compound the stress experienced by the calves and lead to increased losses due to illness. Surgical castration of 5.5-month-old calves resulted in reduced ADG for the first 7 days after surgery, but calves to which local anaesthetic had been administered before castration exhibited higher ADG for the same period when compared with calves undergoing surgery alone. Surgical castration of 6- to 9-month-old bull calves reduced daily weight gain and feed intake.

**Physiologic stress:**

Castration is one of the most stressful experiences for livestock. Blood cortisol concentrations have been studied as indicators of physiologic stress in animals. Regardless of the means of castration, cortisol concentrations are increased following the procedure; however, onset, magnitude, and duration may vary with the procedure used. Surgical castration appears to produce the most substantial rise in plasma cortisol concentration. Age of the animal at time of castration may affect the severity of the cortisol response.