

Column E Explanation

This form is intended as an aid to completing the Column E explanation. It is not an official form and its use is voluntary. Names, addresses, protocols, veterinary care programs, and the like, are not required as part of an explanation. A Column E explanation must be written so as to be understood by lay persons as well as scientists.

1. Registration Number: 23-R-0023.
2. Number 23 of animals used in this study.
3. Species (common name) Guinea pigs of animals used in this study.
4. Explain the procedure producing pain and/or distress.

Dunkin-Hartley guinea pigs develop spontaneous osteoarthritis with age. The purpose of this study was to correlate the severity of arthritic lesions as visualized on MRI with terminal biochemical changes in cartilage. Groups of guinea pigs were observed for clinical signs of arthritis as they age, were imaged multiple times using MRI under general anesthesia and were humanely euthanized using an IV overdose of potassium chloride under general anesthesia. General anesthesia is necessary for MRI to prevent animal movement during imaging. After euthanasia, cartilage was collected and biochemical techniques were used to measure the molecular changes in the cartilage. The arthritis in these guinea pigs develops spontaneously and any signs of stiffness or lameness could not be treated because this would alter clinical observations and measurements of the biochemical content of the cartilage specimens. Animals were monitored by veterinary staff. If any guinea pig became inappetent or reluctant to move due to progressive arthritis, it was euthanized to prevent any further discomfort.

5. Provide scientific justification why pain and/or distress could not be relieved. State methods or means used to determine that pain and/or distress relief would interfere with test results. (For Federally mandated testing, see Item 6 below.)

The PI has done comprehensive literature searches with each approval and re-approval of the protocol and has determined that treatment for arthritis, which is chronic and slowly progressive, is likely to both alter clinical observations and to alter biochemical measurement.

6. What, if any, federal regulations require this procedure? Cite the agency, the code of Federal Regulations (CFR) title number and the specific section number (e.g. APHIS, 9 CFR 113.102):

None.

Agency _____ CFR _____

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1. Registration Number: 23-R-0023.

2. Number 62 of animals used in this study.

3. Species (common name) Swine of animals used in this study.

4. Explain the procedure producing pain and/or distress.

Open castration of unanesthetized male piglets, aged 7-10 days, is performed in the Swine Teaching Herd as it is done in commercial swine facilities. A vertical incision is placed in the ventral portion of the scrotal sac over each testes. The incision penetrates the skin, the tunics and often the testicular parenchyma in single-motion of the scalpel blade in order to minimize the duration of the procedure. The testes are everted through the incisions and spermatic cords are isolated. Manual traction is placed on the spermatic cord and the resultant tearing of the spermatic cord frees the testes for removal. The traction/tearing of the blood vessels stimulates hemostasis and precludes the need to ligate or cauterize these vessels. The incisions are not closed to promote drainage. The surgical site is washed with antiseptic solution and the piglet returned to the mother. The total time that the piglet is away from its mother is less than 5 minutes.

5. Provide scientific justification why pain and/or distress could not be relieved. State methods or means used to determine that pain and/or distress relief would interfere with test results. (For Federally mandated testing, see Item 6 below.)

The stated objective of the School of Veterinary Medicine Swine Teaching Herd is to provide the primary laboratory for veterinary students to experience and learn modern commercial swine production husbandry and management. Livestock producers perform apparently painful procedures that we as veterinary educators have an obligation to teach if we expect to prepare our students for their service to farmers. Scientific evidence documents that these procedures are painful. However, the degree of pain experienced by the animal is unknown, and thus the decision when to intervene with analgesics or anesthetics is unclear; especially when the use of analgesics or anesthetics carries a greater risk to the welfare of the young pre-weaned animal than the seemingly painful procedure. These procedures are brief, with the most painful steps performed rapidly by experienced hands. Alternatively, the use of analgesics or anesthetics is not necessarily effective, may result in similar untoward post-operative effects, and carries a finite risk of fatality. The potential complications associated with anesthesia could compromise the young piglet. Our experience with several thousand castrations is that the animals return to their mother's side immediately and resume nursing; complications associated with blood loss or infection have been nonexistent. Veterinary students are required to use lidocaine (0.5ml of 2% lidocaine) injected into each testicle 15 minutes prior to castration; a faculty member must supervise this procedure and then students are deemed proficient to castrate expeditiously without analgesia.

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None.

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