

Observations of surgical wound healing in *Cyprinus carpio*

Radu Hărșan

Faculty of Veterinary Medicine, University of Agricultural Sciences and Veterinary Medicine, Cluj-Napoca, Romania, European Union; e-mail: harsan_radu@yahoo.com

Abstract. The current short paper is a summary of a wider research on surgical wound healing in common carp. Temperature and suture type influences were observed for 30 days, postoperatory.

Key words: surgery, wound healing, suture types, temperature, common carp, *Cyprinus carpio*.

Rezumat. Scurta notă este un rezumat al unei lucrări mai ample de cercetare a cicatrizării plăgilor operatorii la crap. Efectele temperaturii și ale tipului de sutură au fost urmărite 30 zile, postoperator.

Cuvinte cheie: chirurgie, vindecarea plăgilor, tipuri de sutură, crapul comun, *Cyprinus carpio*.

Summary. The increasing request for surgical interventions on carp demanded a study on the particularities of the surgical wound healing. Due to the high value of koi variety of *C. carpio* Linnaeus, 1758 we conducted a study on this species. The study was made on 30 common carps, and fish were kept in different temperature conditions (15 and 20°C) and temperature influence and the wound healing were observed during the 30 postoperatory days. Three suture types: intradermic, continuous suture (Fig. 1) and interrupted suture (Fig. 2) were applied to the wound after a previous Eugenol-induced anaesthesia (60 mg/L water); the used suture material was silk. Tissue reaction was evaluated mainly by gross visual inspection. The total inflammatory reaction was graded on a scale from 0 (no inflammation) to 5 (severe inflammation) according to Hurty et al (2002).



Fig. 1. Continuous suture in carp surgery (original photo).

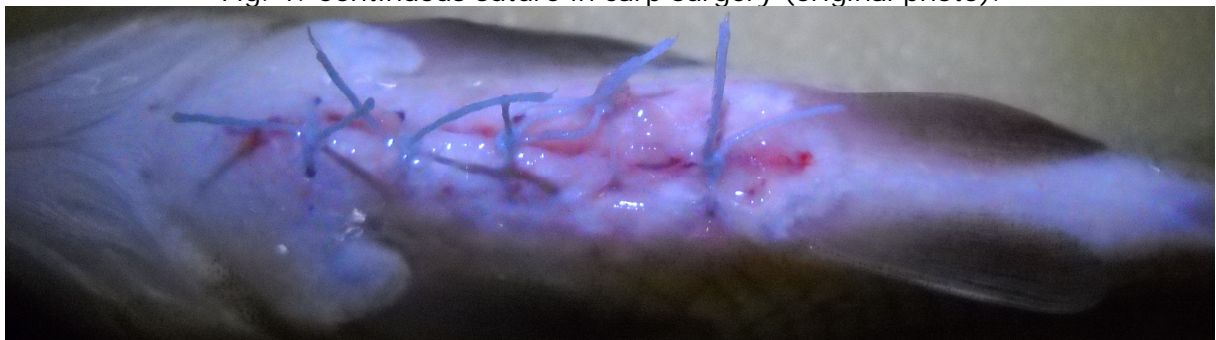


Fig. 2. Interrupted suture in carp surgery (original photo).

The results revealed that 15°C is not suitable for fish recovery after surgery. At 20°C wound healing showed best potential of recovery only in two types of suture studied: continuous and interrupted suture. In the case of intradermic suture the fish were lost at the first feeding due to increasing of the abdominal volume and rupture of the body wall. The wire is best to be cut seven days after surgery (Fig. 3) and moderate feeding is still necessary one more week at 20°C. Tripaflavine baths are recommended during the whole period to avoid fungal infection of the wound.



Fig. 3. Sutured wound at seven days after surgery, prior to wire extracting (original).

Nowadays, many fish species go extinct mainly due to environmental pollution (Hărșan & Petrescu-Mag 2008). Many valuable fish species are often kept and reproduced in captivity (Rhyne 2010), while some aquaculture fish species are only artificially bred (Diyaware et al 2010; Brzuska 2003). In many cases surgery is involved in fish health or reproduction (Kabir & Bani 2011; Petrescu-Mag et al 2011) so that fish surgery is an intriguing direction for research (Harms 2005).

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Author:

Radu Hărșan, Faculty of Veterinary Medicine, University of Agricultural Sciences and Veterinary Medicine, Cluj-Napoca, 3-5 Calea Mănăștur Street, Cluj-Napoca, Cluj, Romania; e-mail: harsan_radu@yahoo.com

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