History of Pig Castration

By: Johanna Mörlein

Abstract: The widespread castration of non-anaesthetized pigs has been questioned, since scientifically there is no doubt about pain without anesthesia during the procedure. Public outcries have led to changes in European law. These facts shed light on why there is now growing interest in the fattening of uncastrated male pigs as an alternative. The occurrence of an off-odor in the fatty tissue of the fattened, uncastrated male pigs, however, continues to hinder the widespread adoption of this method in Europe and, in this case, Germany. Castration is, indeed, a longstanding method but it was usually implemented for breeding purposes and aggression reduction. In other words, it was used for very pragmatic reasons for management and handling. The reviewed ancient literature contradicts the widespread opinion that maintains that pig castration has always been used to prevent off-odors in meat produced for human consumption.

Keywords: Food history, animal welfare, swine husbandry, castration, pork, boar taint

Consumer and scientific concerns about animal welfare in European agriculture have been growing in recent years, especially with respect to painful routine practices in animal husbandry. Such invasive operations as tail-docking, beak-trimming, and castration—which are not practiced for curative treatment of diseases, but as preventive measures to adapt animals to food production systems—have come under increased scrutiny (Der Wissenschaftliche Beirat für Agrarpolitik, Ernährung und gesundheitlichen Verbraucherschutz [German Scientific Advisory Council on Agricultural Policy, Food and Health Consumer Protection] 2015). Consumers are troubled that contemporary intensive farming systems entail conditions that prevent animals from their natural behavior and imply body adaptation for industrialized raising conditions informed by scientific research (Phoenix and Walter 2009).

The widespread castration of non-anaesthetized pigs, in particular, has been questioned, since scientifically there is no doubt about pain without anesthesia during the procedure. Public outcries have led to changes in European law and will most certainly have lasting effects on the production of pork. These facts shed light on why there is now growing interest in the fattening of uncastrated male pigs (entire boars) as an alternative for fattening non-anaesthetized castrated pigs. The occurrence of an off-odor in the fatty tissue of the fattened, uncastrated male pigs, however, continues to hinder the widespread adoption of this method in Europe and here, in my case, Germany.

In this research note, I present a short, beginning look at the history and genesis of castration to provide a better understanding of past needs, practices, and how they differ from those in current livestock management systems. My hope is to connect, open discussion, and share resources with others, in varied disciplines, who study and research practices in animal husbandry for pork production. I am especially interested in learning about ancient literature that treats the topic.

What I have found in my historical research so far is that the Fertile Crescent not only represents the earliest evidence of domesticated grains such as einkorn wheat (*Triticum monococcum*) around 10000 BCE (Doebley, Gaut, and Smith 2006: 1309), but was also where domestication of the wild boar (*Sus scrofa)* took place, which may have occurred as early as 10500–10000 BCE (Zeder 2008). There is evidence of other centers of pig domestication in Southeast Asia (Kittawornrat and Zimmerman 2011) and China around 10000 BCE, and in southern Sweden around 2400 BCE (Falkenberg and Hammer 2007). Zooarcheological findings of upper canines from pigs in Uppåkra, Sweden, reveal evidence of castration during the European Iron Age in 500 BCE. Based on the malformation of canines in male pigs and how canines continued to follow further developmental pathways in adult unaltered boars and sows, the assumption has been made that these differences could have resulted from castration (Magnell, Boethius, and Thilderqvist 2016). This possibility is supported by the fact that the teeth of male pigs comprise a part of their secondary sexual characteristics, whose development, of course, can be affected by castration due to changes in the synthesis of hormones. Although castration implies a health risk, there seemed to be reasons for taking this risk in the ancient past.

Irrespective of any doubts surrounding Homer's sole authorship of classical texts, Felix Hoesch's monumental work on pig breeding (1911) cites a Homerian text, dated to around 1102 and 800 BCE, as early evidence of castration of pigs in the Mediterranean area: "Castration of boars must be restricted to the spring and fall and should only be done by a waning moon." A century or so later, the ancient Roman scholar and writer Varro (116 BCE to 27 BCE) wrote three books concerning agriculture entitled *Rerum Rusticarum Libri Tres*. The second of these, *De re pecuaria*, deals with breeding and livestock management, and claims that "The best time for castrating boars is when they are one year old. No animal should be castrated before it has reached an age of at least six months" (Hooper and Ash 1934: 365). Meyer et al. interpret Varro's statement as proof that the Romans were already aware of the improved growth performance of boars (Meyer, Franke, and Schäffer 2004). Varro also describes the advantages and disadvantages of dog castration, also indicating that the Romans were aware of its effects on dog temperament. He wrote: "Whenever they carried out surgical castration male dogs lost their viciousness," a clear advantage for easier handling. These two texts written by Homer and Varro from pre-Christian times are early proofs that castration is an old tradition in pig livestock management systems.

The next accessible reference I have so far been able to review is from Johann Christian Gotthard from 1798 in Germany, referring to differences in the management of sows, boars, and castrated males depending on their purposes. He explained that to be able to control breeding, at least two barns were needed so that sows and boars could be kept separately. He described boars as "mean, foaming at the mouth and being offensively aggressive toward humans," recommending that, "To prevent any misfortune, their long incisors needed to be broken off." Compared to the handling of dogs described by Varro, here the handling explicitly referring to boars is described as dangerous, thus alluding to the advantages of raising castrated pigs for purposes other than breeding (Gotthard 1798). In 1838 G. H. Haumann extended reasons for castration of male pigs, giving two reasons: 1) to control the number of offspring and breeding in general; and 2) to make it

easier to fatten them. He explained the second reason by his observation that uncastrated pigs did not lend themselves to fattening as they neither tended to gain weight nor did their meat become tender compared to castrated pigs (Haumann 1838). According to these references, castration was not utilized as a means to influence odor deviations in meat.

As mentioned above, one reason for castration was to control breeding. In fact, this justification became law in different regions of Germany, for instance in Thuringia in 1856 and Bavaria in 1910 (Meinzolt and Niklas 1930). These early breeding laws (called *Körgesetz* in German) also prescribed that only specific boars with approved traits should be commonly kept and used for breeding purposes (Boettcher, Ritter, and Kürbs 1994).

A few years later, B. Koch wrote (1917) that the disputed castration of female pigs should not be carried out because of high mortality rates and because of the fact that it was not necessary. In comparison, Koch adds, the castration of male pigs was to be carried out earlier than after puberty, namely at the age of 14 days. In contrast, Toepper and Perkuhn (1928) describe castrated pigs as "calm and whose meat is tender, well marbled, tasty, pleasant smelling and displaying excellent fat content." The reader´s interpretation could be that meat from castrated pigs has odor advantages. But the same authors describe older boars as "mean, and so agitated by their sex drive as to make them dangerous." They refer to the meat of such animals with the following description, that "their skin is thick, the flesh is hard, reeking of urine, making it unfit for human consumption." It is obvious that Toepper and Perkuhn describe boars which had been used for breeding and which were in no way associated with boars for meat production. And they compare the meat of such animals with that of castrated pigs, so that the reader's interpretation may be misled as the comparison does not consider the age of pigs. Toepper and Perkuhn also wrote about the advantages of a late castration, whereby "body muscle is further developed which for some purposes make the meat more valuable, e.g., for storable goods" (1928).

It becomes apparent through this small number of historical sources that castration is, indeed, a longstanding method. Usually, however, it was implemented for breeding purposes and aggression reduction. In other words, it was used for very pragmatic reasons for management and handling. Descriptions of off-odors were based on samples taken from old uncastrated boars formerly used exclusively in breeding.

The literature I have so far reviewed appears to contradict the widespread opinion that maintains that pig castration has always been used to prevent off-odors in meat produced for human consumption. I welcome readers to respond with their thoughts and suggestions for further resources to explore.

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