

Pain related to piglet tail docking and/or castration



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In French commercial piggeries, surgical castration is performed during the first week of life under analgesia, while tail are often docked in the early days without pain alleviation. Both operations could be performed at the same time, taking advantage of the effects of analgesia. In this study we compared tail docking alone, castration alone and tail docking + castration under analgesia.

Material and methods

2-days old male piglets allocated within litters to 3 treatments

- **T:** Tail docking (hot cauterizing iron)
- **C:** Castration
- **TC:** Tail docking then Castration

Analgesia: IM injection of meloxicam (0,4 mg/kg), 20 min before operation

Analysis

Chi-square: Behaviour at tail docking/castration

Mixed model (Weight, Vocalisation, Cortisol, main behaviours):

- **Fixed effect:** treatment
- **Random effect:** litter
- **Repeated effect:** period of observation (H0, H4, H24)

Or generalized linear model (rare behaviour)

Measurements

Piglet weight: birth, before operation, weaning

At tail docking and castration:

vocalisation, behaviour (legs mvt/ escape/twisting/stiffness): 35 piglets/T

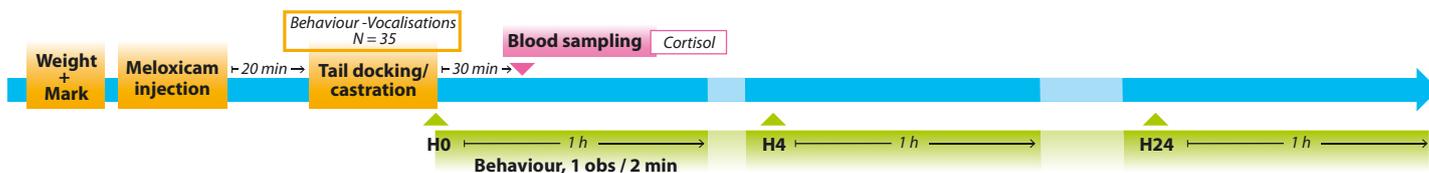
After tail docking and/or castration:

plasma cortisol, 30 min after operation: 20 piglets/T (room A)

behaviour: H0, H4, H24, during one hour: 24 piglets/T (room B)

Table 1: post operative behavioural measurements

Postures	Lying down, sitting, standing, kneeling
Localisation	Sow proximity (< 10 cm), lamp, corner, behind the trough, other
Behaviour (Mutually exclusive)	Pain related: trembling, spasms, huddling up, hesitant walk Non specific: suckling, playing, exploring, normal walk, drinking, elimination, rest
Other pain B.	Isolated, prostrated, hindquarter protecting, desynchronised
Tail movement	When records are possible, high amplitude movement, trembling, tucked under, immobile



Results

During the operation

- Piglets movements during tail docking or castration: no difference between treatments
- Differences in vocalization **at castration only** → 2 procedures increase stress response

Plasma cortisol

- 93.8 / 142.5 / 172.9 ng/ml respectively for T / C / TC
- Cortisol after castration tends to be lower than after tail docking + castration (P < 0.1)

Post operative behaviour (table 2)

- Pain related behaviour are rare and don't differ between treatments except for prostration during the first hour post operation
- **T vs C**
 - Tail is more trembling whereas ample movements are reduced
 - Less sitting and more exploration
- **T vs TC**
 - T piglets are more active, stand more often and are less sitted
 - Tail is more trembling
- **C vs TC**
 - Few differences
 - C piglets are more active and standing

Fig 1: Treatment effect (T: tail docking, C: castration, TC: tail docking + castration)

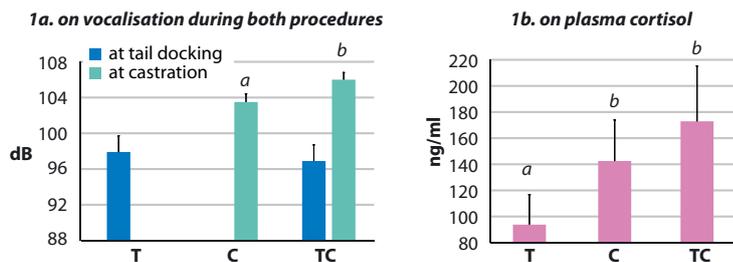


Table 2: Effect of Tail docking, Castration, and Tail docking + Castration performed under analgesia on piglet behaviour after operation

		T	C	TC	statistics
For 3 periods					
Posture	Sitting ⁽¹⁾	2.0 ± 3.8 a	3.8 ± 6.5 b	4.4 ± 5.4 b	P < 0.01
	Standing	25.1 ± 12.2 a	25.0 ± 13.5 a	20.2 ± 10.8 b	P < 0.01
Non specific B.	Exploring	5.8 ± 5.2 a	3.9 ± 4.3 b	4.9 ± 5.0 ab	P < 0.05
	Inactive	65.8 ± 12.6 a	65.6 ± 13.9 a	68.8 ± 11.4 b	P < 0.07
Tail mvt	High amplitude	3.3 ± 4.6 a	10.8 ± 12.4 b	6.2 ± 8.7 ab	P < 0.001
	Trembling	36.8 ± 15.8 a	26.4 ± 13.8 b	31.2 ± 12.5 b	P < 0.001
H0 only					
Specific B.	Prostrated ⁽¹⁾	0 ± 0 a	0.9 ± 0.5 b	0.3 ± 0.2 ab	P < 0.05

(1) : generalized linear model

Conclusion

Procedure-related behaviour are observed when the piglets are back in the pen: tail movements after tail docking and more sitting posture after castration. Acute pain was the highest in TC pigs, slightly lower in C pigs and more clearly lower in T pigs. Both procedures, tail docking and castration, could be performed at the same time to avoid two pain experiences.

