

Beak deformation in a Gentoo Penguin *Pygoscelis papua* (Spheniscidae) chick

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RESUMO: Relato de deformidade no bico de um ninhego do pinguim-gentoo *Pygoscelis papua* (Spheniscidae). Neste artigo reportamos sobre um filhote de pinguim-gentoo com uma deformidade na maxila, encontrado numa colônia das ilhas Shetland do sul. Embora a prevalência deste tipo de anomalia esteja aumentando, as razões para sua explicação não são tão simples de determinar. Contudo, como uma das causas conhecidas de indução à anomalias de formação a deterioração de condições ambientais, consideramos importantes relatos como o feito nesta publicação.

PALAVRAS-CHAVE: Deformidade, maxila, *Pygoscelis papua*, Antártica.

KEY-WORDS: beak deformation, *Pygoscelis papua*, Antarctica.

Beak deformations could result from various causes including congenital defects, deficiency diseases, parasitic infections, injuries, pollution or abnormal feeding of the nestling (Gylstorff and Grimm 1987). Beak morphology is under strong selection pressure, since bill deformities can reduce chick survival directly (Casaux 2004, Marti *et al.* 2008) or compromise normal behaviors such as preening and foraging, which in turn affect health and nutritional status (Van Hemert and Handel 2010).

At the penguin colony on Stranger Point, 25 de Mayo/King George Island, South Shetland (62°16'S, 58°37'W), we recorded a chick Gentoo Penguin (*Pygoscelis papua*) with a beak abnormality during the 2009/2010 breeding season. Deformation involved mainly the upper mandible, which was shorter and bent down and to the left. The lower mandible showed no evident anomaly (Figure 1).

The chick was observed only on one occasion, on 3 February 2010, when it was at the crèche stage. Given that this nest was not one of those in the monitoring program of our group, its exact age and growth rate were unknown. Nevertheless, according to the chronology of the Gentoo Penguin for that season, where the peak of egg hatching was 4 January 2010 and the mean duration of guard period was 28.11 ± 2.87 days (M. A. J., *unpubl. data*), we inferred an age of 28-30 days. For 2009/2010, overall breeding success was 0.87 chicks in crèches/nests with eggs, which was towards the lower end of values of breeding success recorded for this species in

this area (0.76-1.27, Carlini *et al.* 2009). Despite the low reproductive performance of the population, the survival of the chick at least until the crèche period indicates that this abnormality did not represent a lethal condition in the first stages of its life. Gentoo chicks are fed until they fledge at the age of ~72 days (Trivelpiece *et al.* 1987). They then depart to sea to start foraging for themselves, at which point differences in beak morphology critically affect foraging ability. As penguins catch isolated krill one at a time (Young 1994), it is highly probable that survival depends on having a normal beak.

Beaks abnormalities have increased in prevalence in adult birds over recent years, though without clear explanations for these pathologies (Van Hemert and Handel 2010, Handel *et al.* 2010). The records in Antarctica have been sporadic, nevertheless, and as far as we know, only involved chicks of Emperor Penguin *Aptenodytes forsteri* (Pütz and Plötz 1991, Splettstoesser and Todd 1998), Antarctic Cormorant *Phalacrocorax bransfieldensis* (Casaux 2004), and Southern Giant Petrel *Macronectes giganteus* (Marti *et al.* 2008). The low occurrence of these events makes explanation difficult. In accordance with Splettstoesser and Todd (1998), we consider that this single record amongst ~2590 monitored chicks would not be of an unusual frequency for genetic abnormalities. Nevertheless, we recommend continued reporting of these malformations, taking into account that an increase in the rates of abnormalities could reflect underlying environmental problems (Ohlendorf *et al.* 1986).

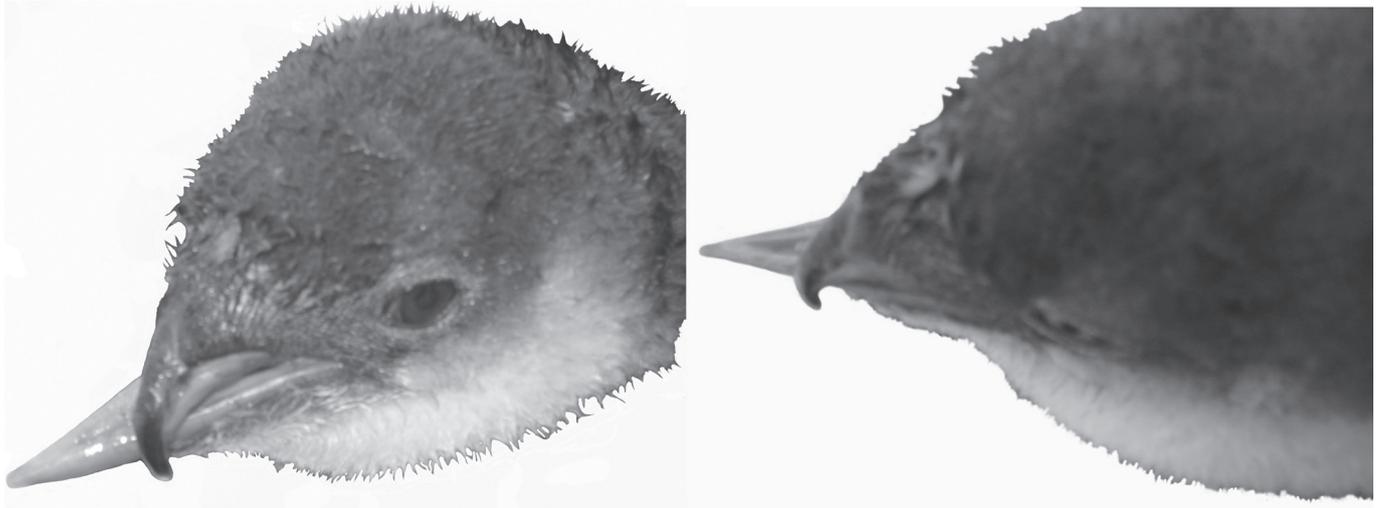


Figure 1: Deformation of the upper mandible in a chick Gentoo Penguin *Pygoscelis papua* at Stranger Point colony (two views of the same chick).

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