

BLOOD COLLECTION FROM PENGUINS

## A NEW TECHNIQUE OF BLOOD COLLECTION FROM PENGUINS

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Abstract: We need large volumes of blood from Humboldt penguins (Spheniscus humboldti). For this purpose we proposed a new efficient technique for blood collection from penguins. The dorsal coccygeal vein is used. It is accessible over the first free caudal vertebrae, in between the dorsal vertebral prominences. Advantages of this method over the others are comfortable restraint, easy localization of the correct site, quick drawing of larger volumes of blood, and safety for the bird.

Key words: Blood collection, Humboldt penguin, Spheniscus humboldti.

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INTRODUCTION

We were faced to urgent need of collecting large volumes of blood from Humboldt penguins (Spheniscus humboldti) for the aspergilosis seroconversion and the paternity testing. None of routinely used methods of blood sampling in birds was suitable for us. For this purpose we proposed a new method, when the dorsal coccygeal vein puncture is used. This vein lies on the dorsal aspect of the synsacrum and the tail.

## MATERIALS AND METHODS

35 We sampled 26 Humboldt penguins (Spheniscus humboldti) from the Prague Zoo and five Gentoo penguins (Pygoscelis papua) from the Indianapolis Zoo.

### Restraint

40 An assistant holds the penguin under his right arm and with both the legs in the same hand (when assisting to a right-handed veterinarian) (Fig. 1).

### Venipuncture site

45 The best point to puncture the dorsal coccygeal vein is at the base of the tail (Fig. 2). More caudal one can hit the uropygial gland. To find the correct site one has to take the pelvis of the penguin by left hand as shown on the Figure 1. Then one touches the sides of the tail by the thumb and the middle finger of the right hand, and finds the middle by the index finger. Insert the 20- or 22-gauge needle in between dorsal vertebral processes at an angle of 60 to 45°.

50 When the apex touches the bone of the vertebral body, one should try to suck up the blood

into the syringe. If no blood is coming, then it is necessary to move the needle slightly up or around, keeping the syringe sucking up all the time.

## RESULTS AND DISCUSSION

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The method of fixation, which we used for our method, is very efficient in our opinion. Only one assistant is necessary and the bird's beak does not jeopardize the veterinarian. The bird is also calm and feels comfortable.

If the correct point for the dorsal coccygeal vein puncture is found, once placed, the needle is 60relatively stable in the right position. Small movements of the restrained penguin are not disturbing, and the blood flows-in quickly. We routinely gained 5 – 7 ml of blood.

There are six routine blood collection techniques in birds:

- a) Jugular venipuncture is used in most avian species.<sup>1,2,3,4</sup> The right jugular vein is usually chosen, because it is larger than the left one.
- 65b) Ulnar (basilic, wing) vein puncture is a common method for obtaining blood from medium to large birds.<sup>1,2,3,4</sup> The vein is found as it crosses the ventral surface of the humero-radioulnar joint.
- c) Medial metatarsal vein puncture has an advantage in that the surrounding muscles protect the vein from hematoma formation.<sup>1,2,4</sup>
- 70d) Toenail clipping provides small amounts of blood, enough for smears, microhematocrit, and/or microserum separator tubes.<sup>4</sup>
- e) Occipital venous sinus and f) Cardiac punctures are techniques used primarily for the research and/or prior to euthanasia.<sup>1,2</sup>

The main advantage of blood sampling from the dorsal coccygeal vein is easy and rapid 75drawing of larger volumes. In penguins, in particular, the peripheral veins are almost non-

visible. Medial metatarsal vein is excellent for gaining several drops of blood, but it is very difficult to keep the needle within the vein of an non-anaesthetized penguin, if you need more than 0.5 ml of blood. Training and experience is necessary to hit the jugular and/or the ulnar vein in penguins.

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## CONCLUSIONS

A new method of blood sampling in penguins is demonstrated. We have used this technique in Humboldt penguins and Gentoo penguins so far, but we think that it is a very promising method also for other species of birds.

We have never had any health problems after the venipuncture at this site.

Acknowledgement: We gratefully acknowledge veterinarians from Indianapolis Zoo for enabling us to verify the new method in Gentoo penguins. Many thanks belong to them for following this method enthusiastically, as well.

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Captions.

Figure 1. Restraint of the penguin for blood collection from dorsal coccygeal vein.

110Figure 2. Puncture of dorsal coccygeal vein (the anatomic scheme).