

# IMAGING OF THE HEAD OF A ROSY-FACED LOVEBIRD *AGAPORNIS ROSEICOLLIS* (V. 1818) BY 7-TESLA MRI

Szal Bartłomiej<sup>1</sup>, Bartyzel Bartłomiej J.<sup>1</sup>, Bogorodzki Piotr<sup>2,3</sup>, Orzeł Jarosław<sup>2,3</sup>, Kossowski Bartosz<sup>2,3</sup>, Wełniak-Kamińska Marlena<sup>3</sup>, Fiedorowicz Michał<sup>3</sup>, Ciołkowski Maciej<sup>4</sup>, Olbrych Katarzyna<sup>1</sup>, Szara Tomasz<sup>1</sup>

<sup>1</sup>Department of Morphological Sciences, Faculty of Veterinary Medicine, Nowoursynowska 159, 02-776 Warsaw, Poland

<sup>2</sup>Faculty of Electronics and Information Technology, Warsaw University of Technology, Nowowiejska 15/19, 00-665 Warsaw, Poland

<sup>3</sup>Small Animal Magnetic Resonance Imaging Laboratory, Mossakowski Medical Research Centre, Polish Academy of Science, Pawińskiego 5, 02-106 Warsaw, Poland

<sup>4</sup>Department of Descriptive and Clinical Anatomy CB, Medical University of Warsaw, Chałubińskiego 5, 02-004 Warsaw, Poland

**Introduction:** Rosy-faced Lovebird *Agapornis roseicollis* (Vieillot, 1818) – is a small bird species of the order Psittacidae. In the nature it occurs in flocks in south-western Africa. These birds are monogamic animals that create a strong bond with the partner. This feature has increased the attractiveness of the parrots as companion birds. Despite their small size, Lovebirds might present dominant character even against humans (del Hoyo, 1992). High-field MRI, a new imaging technique, could be irreplaceable in structural or functional evaluation of the bird encephalon during clinical examination performed in order to explain not uncommon extreme behavioral disorders.

**Material and methods:** Premortem clinically healthy individual was examined postmortem with 7-tesla MRI Bruker with parameters TR: 4300.0 ms; TE: 36,0 ms; ET: 8; Flip Angle 180,0; Slice location 34,43 mm; Slice thck: 0,80 mm; Spacing: 2,00; Bit depth 16; Frame size: 70 x70 mm.

**Results and discussion:** Examination showed clearly the eyeballs with optic nerves and encephalon (telencephalon, optic lobes, hypothalamus, pituitary gland, cerebellum, medulla oblongata). Visualization of indicated structures could not be possible in a standard low-field MRI. The opportunity to perform functional examination in addition to structural one is the future of diagnostic imaging. This kind of techniques are used in human medicine (Majos et al., 2011). Increasing awareness of exotic bird owners and their will to cooperate, especially those who have quite valuable species in their possession (Bartyzel, 2009) together with access to more and more advanced technology used in diagnostics positively affect the development of the field of clinical anatomy. However, to introduce this kind of technique it is essential to have a thorough knowledge of radiology and functional anatomy.

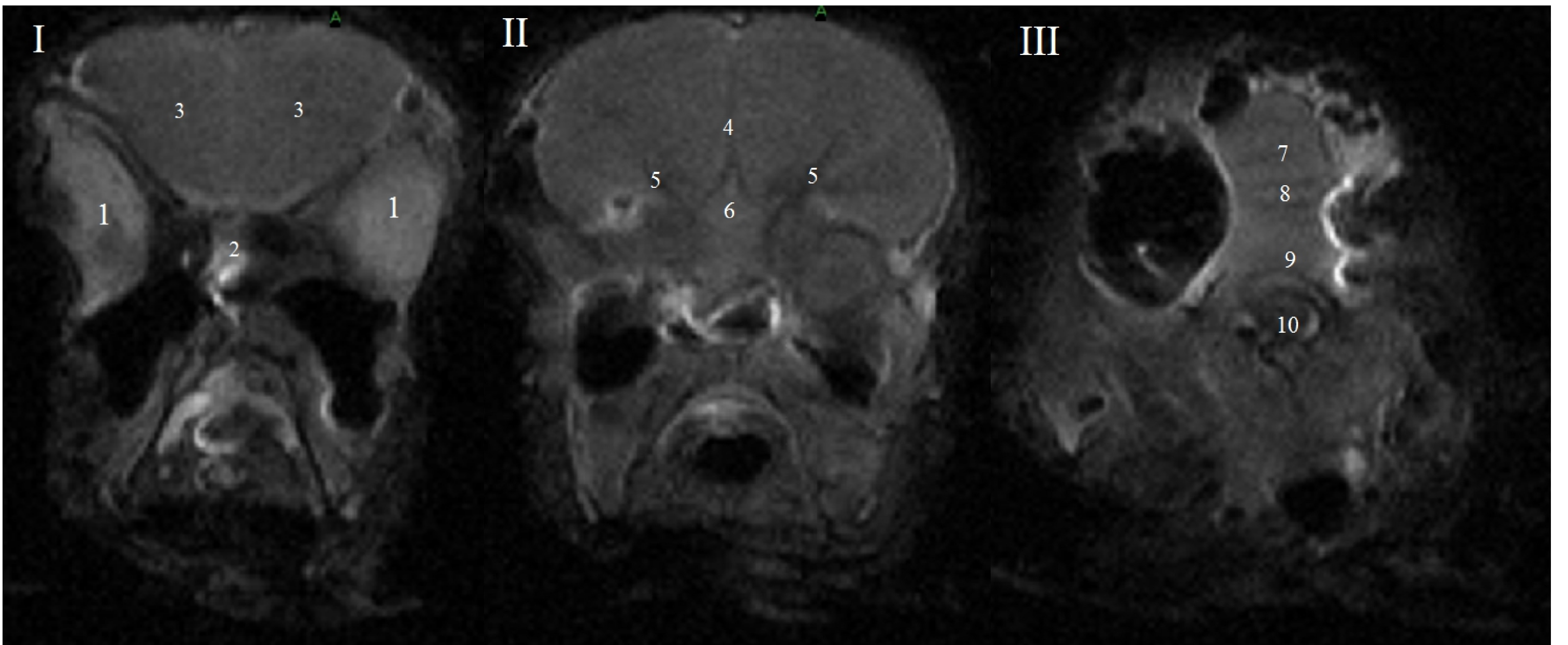


Figure I, II, III – MRI transversal scan of the head of the parrot – 1 = eyeball, 2 = olfactory bulb, 3 = telencephalon, 4 = longitudinal cerebral fissure, 5 = vallecule telencephali, 6 = paleostriatum, 7 = fissure of cerebellum, 8 = folia of cerebellum, 9 = cerebellar auricle, 10 = pons

## Bibliography:

1. Bartyzel B.J.: Some elements of the heart structure and the ascending aorta in selected species of birds in morphological and MSCT and MRI imaging aspects. Bull Vet Inst Pulawy. 2009, 53, 765-770.
2. del Hoyo, J.; Elliott, A.; Sargatal, J. Handbook of the Birds of the World, vol. 4: Sandgrouse to Cuckoos. Lynx Edicions, Barcelona, Spain 1997.
3. Majos A, Wolak T, Sapięha M, Olszycki M, Bogorodzki P, Stefańczyk L. DynamicT1 functional MRI examinations with use of blood pool contrast agent-an approach to optimization of the technique. Clin Imaging. 2011, 35(5), 385-90.