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Amygdala

J.M.S. Pearce

Emeritus Consultant Neurologist, Department of Neurology, Hull Royal Infirmary and Hull York Medical School, Hull, UK

Amygdala derives from Latin *amygdala*, from the Greek *αμυγδαλή*, for 'almond' the fruit of the tree *Prunus dulcis*.

The word amygdala first appeared in English in about 1749 (OED). Like many words its usage has changed. It was then used to mean the tonsils which are almond-shaped. Sir Charles Bell [1] in 1816 stated: 'These are the tonsils or amygdalæ. The amygdala is a mucous gland.'

Amygdalitis in the 19th century referred to tonsillitis. Until recently, amygdala also referred to the cerebellar tonsils. For example, W.E. Le Gros Clark [2] in 1946 observed: 'Close to the side of the medulla is a well-defined oval lobule of the cerebellar hemisphere called the amygdala or tonsil'.

Amygdalotomy describes surgical lesions of this structure.

Located deep within the temporal lobes, medial to the hypothalamus and adjacent to the hippocampus, the amygdala is an almond-shaped mass of several nuclear groups (the amygdaloid complex), with distinct functions. They include the basolateral complex, the centromedial, and the cortical nuclei [3].

The amygdala is a part of the limbic system, active in emotional and social behaviour related to fear and aggression. The amygdalae send impulses to the hypothalamus for activation of the sympathetic nervous system; to the nuclei of the trigeminal nerve and facial nerve, whereby it is involved in recognizing emotional facial expression [4], and to the ventral tegmentum, locus coeruleus, and laterodorsal tegmental nucleus for activation of dopamine, serotonin, noradrenaline and adrenaline. It also relays through the olfactory bulb.

But the almond or amygdala is not confined to medicine. Amygdalaceous is applied botanically to mean almond-like in plants of the Rosaceae that have stone fruits; and your marzipan cake is amygdalate, that is, made of almonds.

In geology, holes or vesicles in a rock, filled with secondary minerals (agate, jasper, and quartz, and by a variety of zeolites) are amygdales, and the rocks containing them are amygdaloidal.

Amygdalin (mandelic acid, α-hydroxybenzeneacetic acid $C_{20}H_{27}NO_{11}$), formerly used in urinary tract infections to acidify the urine, is a crystalline glycoside found in the kernels of almonds. Amygdalic acid, $C_{20}H_{26}O_{12}$ is derived from amygdalin by boiling with alkali. Victims of cyanide poisoning smell of bitter almonds. Only the inorganic cyanides, e.g. potassium cyanide and sodium cyanide and hydrocyanic acid, are extremely poisonous; those bound to sugars (glycosides) are relatively non-toxic.

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J.M.S. Pearce
304 Beverley Road
Anlaby, East Yorks HU10 7BG (UK)