MEDICAL PRACTICE

Occasional Review

Zoography: the use of animal terms in medicine

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Recently Terry and Hanchard¹ gave an extensive list of the allusions to food and drink in medical publications. I believe, however, that the frequency with which allusions have been made to animals is just as impressive. In this review I have omitted any disease whose name is derived from the animal associated with the problem—for example, erysipeloid that follows handling raw seal meat may be described as seal finger. Also excluded are descriptions of human personality that are likened to animal characteristics—for example, an obstinate person may be called pig-headed. Despite these omissions I have managed to chase, corner, and capture 197 examples from various publications and present them for viewing.

Marine life

Embryologists liken the branchial arches of a mammalian embryo to those of the gills of fishes (Gk *bragchia*, gills). Changes in the eye by both interstitial keratitis and sickle haemoglobinopathies may remind the ophthalmologist of salmon patches. The dermatologist also recognises a salmon patch due to a capillary angioma and ichthyosis as resembling fish scales. The pathologist, however, is more likely to recognise the fish-scale gall bladder as due to multiple small mucous cysts and the “fish flesh” appearance of the cut surface of a sarcoma. The deformed opening of the mitral valve in severe stenosis may resemble a fish mouth to the cardiologist. *Squama* is Latin for scale, thus squamous epithelium is scaly and resembles the scales of a fish. Aspiration of an amoebic liver abscess may produce anchovy sauce, and varicose veins under the tongue are likened to sturgeon's eggs. Codfish vertebrae are skeletal

changes seen in Cushing's syndrome. To catch your fish you need either a net (rete is an anatomical term for a mesh or network of nerves, blood vessels, or tubules, hence rete testis) or a hook (L *hamus*) a hook-shaped process of bone—for instance, lacrimal hamulus and a short rod (L *bacillum*) a rod-shaped bacterium. When a bacteriologist is not available he may have “gone fishing” because this is a term for picking from a culture medium a colony for further study.

Concha, Latin for shell, is used in anatomy for many shell-like structures, thus nasal concha. More specifically in ophthalmology, swelling around the cornea of the eye as a result of oedema of the conjunctiva is chemosis (Latin for cockle-shell). A limpet-shell crust is a blackish scab that forms over the lesions in secondary syphilis. The cochlea of the inner ear is likened to a snail shell, whereas the snail's track is left in ulcers of secondary syphilis. There are a few resemblances to sponges or coral. Cancellous or spongy bone is found at the ends of long bones, and a coral calculus lodges in the kidney pelvis and takes shape as branches extend into the calyces, thereby resembling a coral.

After the worldwide eradication of smallpox the lobster rash seen in severe haemorrhagic cases will no longer be recognised. Still with us, though, is the split hand or foot deformity likened to a lobster claw and the lobster claw catheter, which is jointed in three places near its tip. Cancer is derived from the Latin for crab, whereas crab yaws is characterised by hyperkeratosis of the foot due to *Treponema pertenue*.

Amphibians and reptiles

Phrynodermia, a dry skin that may be a sign of avitaminosis was likened by the Greeks to a toad's skin (*phrynos*, toad), whereas a frog's belly resembles not only a cystic swelling of the floor of the mouth called a ranula (dim of L *rana*, frog) but also the abdomen in a semitympanic state due to childhood rickets. A flattened face due to intranasal disease has been described as a frog face.

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A greatly distorted nail that is more convex than normal is a turtleback nail. Lizard skin is thickened, lustreless, and furrowed skin seen not only in onychocerciasis but also in severe ichthyosis and saurodermia (*L sauros*, lizard). A serpinginous ulcer of tertiary syphilis "creeps like a serpent"; by comparison certain arteries in old age become elongated and tortuous resembling a snake, hence serpentine aneurysm. Patients with athetosis show snake-charming movements. The Greek for snake is *ophis*, ophiasis is alopecia areata at the margin of the scalp, producing a snake-like hair outline. More specifically the cobra-head sign is a halo of radiolucent bladder wall on excretion urography seen in a ureterocele. A crocodile tongue is corrugated and furrowed; crocodile skin is another description of severe ichthyosis. Crocodile tears may be shed on recovery from a Bell's palsy but are more common as a false show of grief.

Insects, worms, and arthropods

A cardiologist may recognise a thready pulse as a formicant pulse (*L formicare*, to creep like an ant). A flea-bitten kidney is sometimes seen after bacterial endocarditis. Flying flies are literally seen in muscae volitantes, as they are the variously shaped objects that appear in the field of vision caused by a defect in the vitreous humour. Folliculitis of the scalp, vespajus, is likened to wasp juice (*L vespa*, wasp). References are more common to butterflies than moths. A brain-scan appearance associated with a malignant glioma in both hemispheres joined through the corpus callosum is called a butterfly shadow; a butterfly fracture is a comminuted one in which there are two fragments on each side of a main fracture. Butterfly needles with their plastic wings are often seen in flight. Systemic lupus erythematosus and rosacea can affect both the cheeks and nose, giving the appearance of a butterfly with extended wings. A radiological sign where the two lateral halves of a vertebral body do not fuse is called a butterfly vertebra. A moth patch is an area of chloasma; "moth-eaten" alopecia is patchy loss of head hair in secondary syphilis.

There are few analogies to the segmented worms. The lumbrical muscles of the hand and foot are likened to worms (*L lumbricus*, earthworm), so too is the vermis of the cerebellum (*L vermis*, worm). The popular name for a group of superficial fungal infections of the skin is ringworm (*L tineas*, a grub, larva, or worm).

Spiders may be found in many corners of medical practice. Arachnodactyly are spider fingers, and arachnogastric, enlargement of the abdomen seen in ascites but with wasting of the rest of the body, is a spider belly (*Gk arachne*, spider). Spider naevi are found in the skin of patients with liver failure, whereas radiating lines of capillaries on the leg due to venous dilatation are called a spider burst. A spider cell has many fine processes, such as an astrocyte, while a spider pelvis shows up on a pyelogram as long string-like lines in the renal pelvis. If left to settle the cerebrospinal fluid from a patient with tuberculous meningitis is said to resemble a spider's web.

Birds

Medical practitioners have found many analogies in ornithology. There is the chicken-broth fluid of pancreatitis and chicken-fat clots found in major blood vessels at necropsy. The crista galli, which is a crest-like elevation of the ethmoid projecting upwards in the anterior cranial fossa, derives its name from the Latin meaning cock's comb. Submental vertical skin folds are known as a turkey-gobbler neck. Gooseflesh or cutis anserina (*L anser*, goose) is well known, but the conjoint insertion into the tibia of the sartorius, gracilis, and semitendinosus muscles and their resemblance to a goose's foot, pes anserinus, may be less familiar. A goose gait is a waddling type occurring in arthritis whereas a duck gait is associated with pseudohypertrophic muscular paralysis. Another waddling

analogy is the duck-waddle test to detect a tear of the posterior horn of knee meniscus in a child. The swan-neck deformity of a finger in rheumatoid arthritis shows hyperextension at the proximal interphalangeal joint and flexion at the terminal interphalangeal joint.

The change in the quality of the voice due to diseases of the larynx or air passages has been likened to a peacock's call. The fine creases that extend in a radial fan-like fashion from the edges of the eye are similar to crow's feet (*pes corvinus*). The coracoid process of the scapula resembles either the shape of a crow's beak or a crow perched on a branch (*Gk korax*, crow). The coronium, the tip of the coronoid process of the mandible, is also likened to a crow (*Gk korone*). Aphthous stomatitis due to *Candida* spp is known as thrush, and the appearance of heart muscle in irregular streaks of pale friable areas of fatty degeneration, particularly in severe anaemia, is likened not only to a thrush's breast but also to that of a tabby-cat or tiger. Another breast belongs to the pigeon, often seen in rickets, as do pigeon toes. Congenital syphilitic orchitis is said to produce testes like pigeon's eggs. A nail may be curved like a parrot's beak, and the coccyx is so called for its resemblance to a cuckoo's beak. A form of lupus vulgaris affecting the nose is described as a parrot-beak deformity. In low-grade fevers a dry shrunken tongue, which can be protruded only with difficulty is a parrot tongue. The inclusion bodies seen in tissue culture cells infected with a cytomegalovirus are described as owl's eye inclusions.

All birds have wings, and an anatomical term applied to various structures in the region of the sphenoid bone is pterygoid (*Gk pteryx*, wing), also ala temporalis is the greater wing of the sphenoid bone (*L ala*, wing), and the external ear, pinna, also means wing. Bipenniform describes muscles, the fibres of which spring from each side of a tendon like the barbs on the shaft of a feather—for example, rectus femoris muscle. Bird's beaks are also common analogies, those of the parrot, cuckoo, and crow have already been described. The rostrum of the sphenoid is a small beak-like projection from the body of the bone (*L rostrum*, bill or beak of bird). A protrusion of the upper jaw is a bird-beak jaw and a birdface malformation has a prominent forehead with a recessed midface, the upper lip is lengthened, and the chin projects. Deformity of the hand or toes may produce claw hand or toes. Resemblances to egg shells include egg-shell calcification in the wall of an empyema, egg-shell nail of erythrocytosis or vitamin-A deficiency, and egg-shell crackle elicited by palpation of the superficial parts of a thin-walled tumour—for example, a giant-cell bone tumour. Finally, the birds come home to roost in a bird's-nest body, which is a concentrically arranged epithelial cell found in an epithelioma.

Mammals

In bacteriology a colony that grows out laterally in spines from a stab inoculum is termed echinulate (*L echinus*, hedgehog). Ankylosis of the mandibular joint produces a shrewmouse profile and porcupine skin describes ichthyosis hystrix. The broad ligaments of the uterus were called alae vespertilionum, literally bat's wings. A chest x-ray shadow that radiates through both lungs from the hilar region towards the periphery leaving a clear zone at the apices, periphery, and bases is likened to a bat's wing. There is also bat's-wing lupus—that is, lupus erythematosus—and bat ears still remain prominent.

A human hand with a median and ulnar nerve palsy resembles an ape's hand, but a simian deformity is one in which the tip and anterior part of the nasal septa have been eroded, so that the openings of the nares face upwards, as in most species of ape. Pithecanthropus is an ape-like man (*Gk pithekos*, ape). Rabbit ears may be seen on an air encephalogram due to dilatation of the cisterna corporis callosi; it is usually an indication of a mass in the posterior cranial fossa.

In hare eye or lagophthalmia the eye cannot be entirely closed because the upper eyelid does not descend due to the facial nerve involvement (*Gk lagos*, hare). This mammal is also remembered

for its hare-lip and buck-teeth. *Myos* or *mys* is Latin for mouse and also muscle; it has been suggested that the association is due to the muscles being like mice under the skin. A similar analogy of the lumbrical muscles resembling earthworms has already been described. A mouse-tail pulse is one that tapers away, but the closely related rat-tailing is a radiological appearance of the oesophagus distorted by a bronchial carcinoma; a rat-tail catheter runs to a fine point and is used for narrow urethral openings. A rodent ulcer is a basal cell carcinoma commonly occurring on the face. The common name for a naevus, however, has nothing to do with a mole (L *moles*, shapeless mass). A heart showing right ventricular preponderance is sometimes described as a porpoise heart. The word quinsy comes from squinancie and esquinancie, French for the self-strangulation of a dog straining at the leash. A canine tooth resembles in shape a dog's fang (L *canis*, dog). Bulldog calf is the bowed appearance of the calf in cases of hereditary achondroplasia. The grinning distortion of the face, risus sardonicus, that may occur in tetanus is also called canine spasm. Alopecia resembles the mange of a fox (Gk *alopex*, fox). Amnion is from the Greek *amnos* meaning lamb; the word is associated with the sacrifice of pregnant sheep so the amnion may well have been seen first at such an offering. Sheep dung stools are the small, round, hardened stools of spastic constipation. A flocculus is a small mass of bacteria floating in a culture medium (L *floccus*, a tuft of wool). A wolf in sheep's clothing, however, could be *lupus vulgaris* (L *lupus*, wolf). The nail of onychogryphosis is likened to a ram's horn nail. Legs of unequal length have been described as badger legs. Leopard skin is extensive areas of depigmentation of the skin seen in onchocerciasis. Cri-du-chat, the cat-cry syndrome, and also the cat's eye syndrome are both due to chromosome abnormalities. Cat's ears are those falling over the auricle, whereas cat's eyes are human eyes with complete congenital coloboma of the iris, thereby resembling the slit-like pupil of a cat. Leontiasis ossea is an overgrowth of the bones of the face producing a lion-like appearance (L *leo*, lion). The variegated retina found in retinitis pigmentosa has been described as a leopard retina, and leopard skin is another descriptive term used for onchocerciasis. Ulnar deviation of the fingers in chronic rheumatoid arthritis is known as a seal-fin deformity. Elephantiasis is gross lymphatic oedema of the legs, and the elephant is another animal from the tropics whose skin is likened to that of human onchocerciasis.

The horse (L *equus*) is very popular with medical practitioners; the cauda equina at the bottom of the spinal cord is likened to a horse's tail and talipes equinus to the appearance of a horse's foot. The equine gait describes the gait associated with foot drop. A pony-tail naevus is a tuft of lumbosacral hair often associated with diastematomyelia. The necessary riding equipment is provided by the frenulum (L *frenum*, bridle) and habenula (L *habena*, a little rein), together with a bridle suture as applied to the superior rectus muscle before intraocular surgery, and, finally, there is the stapes earbone, Latin for stirrup. The other ear bones are essential too as the incus, Latin for anvil, and the malleus, Latin for hammer, can forge the horse-shoe kidney. There is a wide choice of saddles; the nose of congenital syphilis, an embolus that straddles a dividing blood vessel, a joint the opposing surfaces of which are reciprocally concavoconvex, or the sella turcica, a midline depression of the upper surface of the sphenoid bone, that is likened to a Turkish seat or saddle. A saddle-back temperature chart shows a temperature curve with two peaks during the course of illness. A saddle head has a saddle-shaped depression across the vertex. The flagellum or tail of a spermatozoon provides the whip, and the cardiologist may then be seen disappearing at a gallop rhythm.

Atrophy of the orbicularis oris muscle seen in Landouzy-Déjérine dystrophy produces a tapir mouth. Matrix is Latin for a female animal kept for breeding purposes (L *mater*, mother), hence endometrium. Vaccination reminds us of Jenner's pioneering work with cowpox (L *vacca*, cow). The appearance of obesity as a buffalo's hump in Cushing's disease is well known, but the bull-neck oedema of diphtheria is now rarely

seen in Britain. Left ventricular hypertrophy is *cor bovinum* and damage to the recurrent laryngeal nerve may produce a bovine voice. The ox or beefy tongue of acute glossitis yields red, irregular ulcerations on the dorsal side of the tongue, whereas the ox eye or buphthalmos arises out of a congenital defect in the mechanism for drainage of the aqueous-producing infantile glaucoma. Bullock's liver crusts are red-brown scabs that form on scorbutic ulcers. All this meat may be smelt in the butchers' shop odour that is said to be characteristic of a patient with yellow fever.

Merycism is rumination (Gk *merykismos*, to chew the cud). Keratoderma is a generalised hardening of the skin due to changes in the horny layer of the epidermis (Gk *keras*, horn). Corniculate (L *corniculum*, little horn) describes the shape of one of the laryngeal cartilages. Ungula, Latin for claw or hoof, is an instrument used to extract a dead fetus from the uterus. Pigskin is dimpled skin as a result of lymphatic oedema. A stag-horn calculus is one with many branches resembling antlers and occurs in the ureteral pelvis. Pleurisy with an effusion is said to give the voice a bleating quality heard on auscultation, hence aegophony (Gk *aix*, goat). Hircus is Latin for a male goat and the word is used to describe both axillary hairs, as these are supposed to have a goat-like smell, and also the tuft of hairs growing on the tragus of the ear, *barbula hirci*, resembling a goat's beard. The tragus (Gk *tragos*, goat) is the small extension of auricular cartilage in front of the orifice of the external auditory meatus; tragopodia (goat foot) is knock knee. A camel curve is a temperature chart recording two periods of raised temperature separated by an interval of normal or low temperature.

Mythology

The gorgon Medusa's serpent hair not only resembles the dilated veins radiating from the umbilicus in portal obstruction, *caput medusae*, but the microbiologist also likens the edge of a *Bacillus anthracis* colony to her hair. An abdominal x-ray showing a collection of worms in the bowel lumen of a case of ascariasis shows the so-called "Medusa locks" sign. Teratoma derives from the Greek meaning like a monster, while the hippocampus of the brain translated from the Greek is a sea-monster, with the front of the beast like a horse and the back like a dragon with a coiled tail. In a uterus unicornis only one half of the two fused paramesonephric ducts is fully developed, the other half being very small and resembling a unicorn's horn. Chimaira is Greek for a female goat and also a fire-breathing monster with a lion's head, goat's body, and a snake's tail; in medicine chimaira describes a genetically mixed organism—that is, a monster. Ammon was a ram-headed Egyptian god, ammon's horn describes the likeness of part of the hippocampus to a ram's horn.

Discussion

An analysis of these descriptive terms shows that anatomists and dermatologists have provided the highest number of examples. The use of animal terms by anatomists may be related to their investigations of various animals during studies of comparative anatomy, whereas dermatology has always been a descriptive subject, and animals are equally as useful as food for use as analogies for skin diseases.

Possibly in bygone days doctors were in close contact with a wider variety of animals during the course of their work than they are today. Visiting the sick on horseback instead of using a motor car may be one explanation for the many references to the horse and riding equipment and also other farmyard animals. Interestingly, "man's best friend," the dog, provides very few examples. There are many analogies to animals whose home is in the tropics, but how much this reflects medical writing in those countries or the sight of these animals in zoos in cooler climates is hard to judge. Again, there are few references to

animals associated with Australasia, although no doubt in those countries local descriptive terminology may exist.

New food dishes are constantly being created as eating habits change and therefore the potential for new descriptive terms to be used in medicine is always present. In the animal kingdom, however, there is now little scope for the discovery of new species, and indeed animals are becoming threatened and even extinct. Could it be that the names of these animals may become perpetuated in medical science? Nevertheless, I have been unable to find an analogy for the dodo. Extinct diagnoses must be unusual, but the lobster rash of smallpox will no longer be seen.

I can only agree with Terry and Hanchard, who caution

against attempts to introduce new descriptive terms, whether culinary or zoological, that would not convey their meaning accurately to other doctors throughout the world.

I thank Mrs M Senjack for her skilful typing.

Reference

- ¹ Terry SI, Hanchard B. Gastrology: the use of culinary terms in medicine. *Br Med J* 1979;ii:1636-9.

(Accepted 14 September 1982)

MATERIA NON MEDICA

Pedalling in the Promised Land

Riding a bicycle across Jerusalem in rush-hour traffic is a test of nerve and determination. The cars, buses, and donkeys give no quarter, the weaving pedestrians show scant regard for life and limb, and the din of horns and squealing brakes sets the teeth on edge. Yet holiday cycling in Israel offers unforgettable experiences of other kinds too.

The desert road from Arad to the Dead Sea is sheer joy, 3000 feet of freewheeling descent through warm air to the lowest spot on earth. Fierce hairpins are an incentive to concentration and sadly prevent the eye from dwelling too long on the fantastic wind-sculpted shapes of the hills and gullies. Turning north along the shore one feels very small under towering sandstone cliffs wrapped in silence. The road is dominated by Masada, the vast natural fortress where in AD 70 a group of Hebrew rebels frustrated the Roman legions for three years of bitter siege. From this strange and timeless land, where a machine as humble as a bicycle seems an intrusion, one can only travel in one direction: up. The climb back to Jerusalem from Jericho—on a road once notorious for muggings but now made equally dangerous by five-ton trucks overtaking three abreast—is not recommended for summer afternoons. Yet when legs are beginning to seize up, the distant sight of one of the world's most enduring and beautiful cities is a fillip for body and mind.

Spring is the best time to see the Galilee, and from a bicycle one can hear the birdsong, smell the flowers, and almost taste the fruit ripening on roadside trees. Other tourists cruise by in airconditioned coaches but the cyclist is closer to the land and the life with which it seems to be bursting. It would be better still to walk or take a donkey. Small wonder that Jesus found such memorable teaching material in the sights and sounds of this countryside. But if you do set out to explore the land of the Bible don't take a bus, take a bike. Next year in Jerusalem?—ROBERT ELSWOOD, surgical registrar, Edinburgh.

In defence of deep voices

In August I watched on television the delightful Glyndebourne production of *Il Barbiere di Siviglia*—a typical example of the tenor getting the girl. If you look at the story without romantic illusions, really Rosina would have been much happier in the long run safely married to Dr Bartolo (bass). A husband with a proper job, respected in the community and no fool, faithful to her and whom she would soon learn to manage; and a fine house in town with friends round the corner. If she felt like having a fling, no doubt she would successfully manage her liaisons with sprigs of the local nobility or visiting milords. What a contrast is told in the sequel *Le Nozze di Figaro*. We are shown a jealous and unfaithful husband who has tired of her, and unhappy Rosina reduced to committing an indiscretion with a page-boy. Incidentally, can a Beaumarchais reader tell us what happened to Figaro's daughter Marcellina, for whom Rosina said she was wrapping sweets, by the time Susanna came along? Was she an invention by Rosina (an accomplished little liar), or by Rossini's librettist?

A similar situation is repeated in *Die Meistersinger von Nürnberg*.

Eva should have married Beckmesser (bass). Walther will take her off to his damp draughty castle, a long way from her family and social circle, squander her dowry, and then have nothing to do except quarrel with his neighbours, sing the Prize Song, and exercise the *droit du seigneur*. And can anyone seriously believe that he would have passed the Membership (of the Imperial Guild of Mastersingers, Nuremberg) with only 24 hours' swotting unless, as I suspect, he had via his squire bribed a clique in the crowd? In contrast, as wife of the able and hard-working town clerk, Eva would have had the city at her feet; and she might even have arranged to see Walther for illicit passion.

There is no shortage of examples. How much trouble would have been saved in *Il Trovatore* if Leonora had liked and been prepared to accept di Luna (baritone). And on soprano/mezzo-soprano rivalry, how much simpler it could be after "Celeste Amneris"! But many of our favourite operas would then end after the first act.

Do not despair, characters with deep voices. Though composers deride you, the public are secretly on your side.—D N BARON, professor of chemical pathology, London.

More about Dr Tulp

Everyone knows *The Anatomy Lesson of Dr Tulp* by Rembrandt (1632) and its anatomical "error." The first reproduction I saw had a caption suggesting that while Rembrandt was a great artist, he was a very bad anatomist. I have never seen the original, despite a frustrating trip to The Hague (the Mauritshuis being closed for renovations). Accurate present-day reproductions make it quite clear, however, that the muscles held in Dr Tulp's forceps are indeed the long flexors of the supinated left hand, arising incorrectly from the lateral epicondyle of the humerus. Now, while Rembrandt may not have left us the anatomical legacy of da Vinci, one has only to study his paintings, particularly those in Amsterdam and Leningrad, to realise that he was a consummate anatomist, and not only in the artistic sense. Anatomy lessons were a common subject for Dutch painters—there is the remnant of another Rembrandt, *The Anatomy Lesson of Dr Deyman*, in the Rijksmuseum, Amsterdam, artistically more complex but medically more powerful than *Dr Tulp*, with no "errors."

Dr Tulp impresses you with its superb composition of the wonderfully vivacious portraits of the seven ascetic, intelligent "students"—only one of whom is looking at the dissection—and their teacher, with his beautiful hands. It would not have been possible to show Dr Tulp demonstrating the left hand flexors correctly in this composition, as they would have been hidden by the left upper abdomen. This is, therefore, a contrived but necessary error acceptable to Rembrandt, Dr Tulp, and the students. After all it was Rembrandt's first major commission: all the subjects, except the cadaver, paid to have their portraits painted. They have been brilliantly preserved for posterity, with a continued medical interest making the painting slightly controversial but nevertheless a great masterpiece.

Dr Tulp was a well-known physician. There is a Tulp'splein in Amsterdam, and his text book of medicine contains what is apparently the first description of beri-beri. I still have hopes of meeting him in The Hague.—WILLIAM C BOAKE, professor of medicine, Madison, Wisconsin, USA.