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Ethnoveterinary Knowledge of Azarbaijanian People about the Terminology and Pathogenesis of the Animal Infectious Diseases: A Historical and Modern Review of Iranian Native Veterinary Medicine

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Abstract: This a unique report about the ethnoveterinary knowledge of Azarbaijanian people about the terminology and pathogenesis of the animal infectious diseases in folkloric literature and the part of literature which has prolonged among the villagers and conserved its own existence but its terms have not registered in their written forms. Collecting and reviewing these terms about the animal diseases put an apparent persistence on the long experience among native Azerbaijani people (Iran) in its veterinarian aspect. We tried our best to have a good clarification over these terms.

Key words: Ancient terminology, azerbaijan, ethnomedicine, Iran, traditional remedies, veterinary

INTRODUCTION

The relationship of animals and human beings are found in the rock-carvings in caves (Menges, 1968). It seems that each tribe of human beings has to make a kind of companionship with the animals in order to draw on animals in support of their needs and life styles. Meanwhile the Turkish people cannot be considered as an exception. The close association with animals before settling down and taking up agriculture made them proficient horsemen and warriors (Heyat, 2001). Several Turkish leaders in history provided precious input to veterinary medicine. Tamer Lane (13th century A.D.) who was a Turkish king, was a horse breeder, and at first made his efforts in pathology publishing on necropsies performed at his dead horses (Tadjbakhsh, 1993; Fa, 1979).

The appreciation of animals among these people has had a great impact on Turkish literature, especially on folkloric literature, the literature that deals with the life styles and the traditional behavior of people (Tadjbakhsh, 1993; Qarachorlu, 2003). The availability among the people of traditional terms in a great variety, going beyond theauthority in comparison with their scientific equivalents, sounds whimsical. These terms based on clinical signs and pathological lesions are not passed down in written form. This paper tries its best to elucidate some of these valuable terms in use among Azerbaijani people in northwest Iran and still persisting with them.

MATERIALS AND METHODS

These words are a part of many words collected by the authors and some students of Veterinary Department of their University from different towns and villages in the vicinities of Azerbaijani provinces (Ardabil, East and West Azerbaijan) of Iran in four years (from 1999 to 2003). For this purpose, we prepared a questionnaire including information about the word or meaning of the word related to veterinary medicine. Then, students were sent to different regions of Azerbaijani provinces. After filling out the questionnaire by student and native vets, they were collected and put into alphabetical orders. In the next stage, the abovementioned collected materials were matched with available related literature for original meanings and spelling, etymological and veterinary meaning analysis.

RESULTS AND DISCUSSION

The authors had the opportunity to bring together over 400 terms that born reference to Azerbaijani native culture and could analyze some of them using available literature. Followings are some examples of these analyzed words.

Foot and mouth disease: Foot and Mouth Disease (FMD) or aphthous fever, is a well known animal disease among farmers of Iran. Based on French equivalent

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(*Fièvre aphteuse*) it is called Tabeh barfakī in Farsi, but among natives of northwestern Iran, it is known as *Dabbâgh* (in Standard form) and as *Tabagha* (as dialect variant). Perhaps this word (meaning *scars*) denotes the erosions resulted from this disease in the foot (hooves) and mouth cavity of the animals. This local term has been documented in classical Persian literature as *Tabagh*, denoting ulcerative lesions such as FMD and vesicular stomatitis in horse (Tadjbakhsh, 1993). According to historical documents, the Turkic people believed that the disease is transmitted through *the wind* and this can be an evidence of their awareness of the transmission rout of the disease (Dinçer, 1967). In the villages of Azarbayjan of Iran, the farmers use the mixture of vinegar and green outer skin of the nut for therapy of the lesions.

Another word which may be pertinent to here is *Avsil*. This term is used for describing the salivation from the animal's mouth. It is mentioned in classical Turkish book of Dada Gurgut, saying: "He slobbered like a cattle with *Avsil*" (Deda-Gurgud, 1979). Because of the similarities of the symptoms, some authors have translated it as FMD, hence a synonym for *Dabbâgh*. But we think that it may not be possible confidently to assert that these two terms denote the same disease, because there are several diseases with similar symptoms e.g. blue tongue, Rinder-pest, Infectious Bovine Rhinotracheitis (IBR) etc. (Ergin, 2000).

Strangles: Strangles or equine distemper, due to *Streptococcus equi* subsp. *equi*, is a highly contagious disease that affects horses of all ages, but is most common in young animals. It is called now in Farsi as *gūrm*, derived from French *gourme*, but in Azerbaijan region of Iran, *kato* is common. Another term, or a variant of the former is used as *kido*, which is used in general meaning of 'abscess', especially in the guttural and mandibular region in cattle and sheep (comparable with *actinobacillus* and *actinomycosis*). In the equine cases, it is used for *strangles*, which is cognate with *kato*.

Glanders: Glanders is a contagious disease of solipeds. *Burkholderia* (*Pseudomonas*) *mallei* is its causative organism. It has acute or chronic forms, and characterized by pneumonia and nodules or ulcers in the respiratory tract and on the skin. The disease is highly fatal. There are several words for describing this disease, such as *Sārijā, qarājā, mankāfā* (Dinçer, 1967), qilikna, atilkan (Kashgari, 2004), and qunām (Astarabadi *et al*., 1995) (see below). It seems that all of these words denote the skin form of glanders, namely farcy..

In the region Varzeghān of Iranian Azarbayjan, we have recorded word *manghū*, used among the natives, meaning a refractory pneumonia of the horses. The same word, manghū, has been mentioned in encyclopedic dictionary of Persian language (Lughatnāmeh) by Dehkhodā in the same meaning. He says it is more severe than *saghū*, likely he seems a kind of pneumonia in the horses. Dehkhodā also points to the zoonotic nature of the disease. All above descriptions with such distinct clinical manifestations bring us only to the respiratory form of the glanders. Dinçer describes the history of discovering different forms of this disease and their relevancy (Dinçer, 1967).

The term *sārijā*, derived from verb *sārālmāq* means *to become yellow*, is generally used for jaundice. But in the second and more specific meaning, it denotes the skin form of the glanders, i.e., *farcy* meaning the abscesses of skin containing yellowish and foul-smelling material and enlarged local lymph nodes. In Arabic *meshmesheh*, literally meaning apricot, is a common loanword in Farsi for glanders. But in the Persian literature the word *serājeh* is used as an old equivalent for modern *meshmesheh* (Borhān). In some Turkish and Persian classical veterinary texts, this disease was mentioned as *sirājā*. According to several Farsi classical veterinary texts, including:

فرسنامه خوانساري ، فرسنامه صد باب ، فرسنامه هديه شده به سلطان سنجر

It has been mentioned as *khonān* or *khonām* (Tadjbakhsh, 1993).

Considering above, another term among native villagers of Azerbaijan of Iran, is used specifically for the horses, as *atilgan*. According to Divan, 'it is a swelling diseases of the horses, if the abscesses are discharged, it will convalesce, and in Farsi it is called *khonām'* (Kashgari, 2004). As mentioned above, *khonān* or *khonām* denote glanders (Tadjbakhsh, 1993), but the glanders is considered a refractory and incurable disease, hence *atilgan* is not a true equivalent for *khonām*. It seems denote a curable condition such as kato, strangles or a form of lymphangitis. This mix-up of the disease-describing terms are acceptable due to the superficial and naive knowledge of the early veterinarians or farmers, because the differentiation between strangles and other types of lymphangitides needs more precisely acquaintance with the pathology of the diseases.

Diseases associated with *Clostridium* species:

Infectious necrotic hepatitis: An acute toxemia of sheep and cattle caused by the toxin of *Clostridium novyi* is elaborated in damaged liver tissue. The outbreaks are usually associated with fascioliasis. The native term for this disease is as *Jiyar-azma*, formed from *jiyar* liver and *azma* squelching or lysis, referring to changed consistency of the liver in this disease.

Enteric disease associated with clostridiuperfringens: Clostridium perfringens resides in the intestinal tract of

domestic animals and can produce a number of toxins that result in enteric and histotoxic disease. *Clostridium perfringens* isolates are classified into one of five types, types A-E, depending on their ability to produce the four major lethal toxins: the alpha, beta, epsilon, and iota toxins. the activities of these major lethal toxins are the basis of the pathogenesis of the classical enterotoxemias..

Enterotoxemias associated with different types of *Clostridium perfringens* are well-known by native farmers of Azarbayjan. The general term for enterotoxemia is *dalija*, literally means 'madness, a psychotic disease', referring to the clinical manifestations of neurological complications. As this disease is common in different parts of Iranian Azarbayjan, Enterotoxemias associated with different types of *Clostridium perfringens* are named by different terms. The disease associated with *Clostridium perfringens* type B or Lamb dysentery is called *Charatma* (a corruption of *Charlatma*) literally meaning *disgusting*, referring to foul and distasteful appearance of the animal with diarrhea. Another term for this type of disease is *Su-ālmā* or *Ürayi-su-ālmā* describes the postmortem findings of accumulation of water in the pericardium, i.e. hydropericaditis.

As mentioned above, the disease associated with *Clostridium perfringens* type D (pulpy kidney, overeating disease) is called *dalija* (madness) which is associated with neurological symptoms. Here the term *Jin-nanma* (literally: to be furious or angry) may be mentioned, as a general term describing a disease with neurological signs. The term *Su-ālmā* which mentioned above as a general term describing the symptoms of the Enterotoxemia, is also used in a general meaning of 'accumulation of water in the body cavities', i.e. ascites.

Other clostridial infections: Another clostridial disease is infectious myositis associated with *Clostridium chauvoei*, which is called blackleg (in English). True blackleg is common only in cattle but infection with this organism initiated by trauma occurs occasionally in other animals.

In Azerbaijan of Iran the term yāni-ghārā, formed from *yān* meaning flank or leg (gluteal region) and *ghāra* meaning black. In Farsi, the translation of French equivalent is used as *charbon symptomatique*, shārbon 'alāmatī (literally: symptomatic anthrax). The gross pathology of both diseases is alike, but the differentiated diagnosis should be made.

Anthrax: Anthrax is a peracute disease associated with *Bacillus anthracis* occurs in ruminants and horses and is characterized by fever, septicemia and sudden death. In modern Farsi, it is called *siyāh-zakhm* (literally: black wound), which according to Tajbakhsh is used recently, because the old equivalents of this disease in Persian literature are *gandeh-zakhm* and *nār-e-fārsī* etc. (Tadjbakhsh, 1993). The usual term in Farsi which is common between veterinarians is Shārbon, taken from its French equivalent as 'charbon'.

In Azarbayjan region of Iran, the term *ghān-ghārā* is common, formed from *ghān* meaning blood and *ghārā* meaning black and dark, referring to the dark-colored discharges of blood from the nostrils, mouth, anus, and vulva after death of animals. In recent years some young veterinarian graduates mix up *ghān-ghārā* with gangrene, that these words have not relationships with each other. *Ghārā-yāniq* (literally: black burn) is another synonym for *ghān-ghārā*.

There are some terms in Ottoman Turkish such as *dālāgh* (literally: spleen) and *dālāgh böyümasi* (abnormal enlargement of spleen), which have Azari equivalents like *dālāgh olmaq* (literally: any involvement of spleen, i.e. splenopathy). We believe that these words generally describe an overall symptom of some specific diseases, so we consider them as *splenomegaly*. Compare also these words with German *Milzbrand*, fire of spleen.

The terms *ghārā-yārā* (literally: black wound), *ghārā-chibān* (literally: black abcess), *ghārā-bukhjā* (literally: black package), *ghārā-ghābārchilikh* (literally: black blisters) perhaps denote the cutaneous anthrax (Dinçer, 1967). For this one may compare them with literally meanings of English anthrax and French charbon, both point to the black color of the cutaneous lesions of the disease.

The use of *yāni-ghārā* (literally: blackleg) for anthrax is a misnomer, due to the similarity of symptoms of both blackleg and peracute form of anthrax. See Blackleg.
Tālāngu is another term meaning 'peracute lethal poison' attributed to anthrax. According to Smith, perhaps it is agreed with belief of Aristotle, who attributed the sudden death of animals (probably due to this disease) to poison plants (Dinçer, 1967).

Rabies: The first mention of rabies in Turkish texts (Turkish Agglutinates) can be found in the encyclopedia of Mahmoud Kāshghari (1072 AD) entitled Divan-u Lugat-it Türk (Kashgari, 2004). The term *gutuz* means 'mad cow' as the term *gutuz-it* means rabid dog or mad cow in this dictionary (Kashgari, 2004). In other Turkish dictionaries such as Sanglākh 18th century AD (Astarabadi *et al.*, 1995) and Süleymān Afandi (16th century AD) the term *gutuz* is available too (Astarabadi *et al.*, 1995; Bukhari, 1920). Nowadays, the term *gutuz* that has been changed into *guduz* in Azeri Turkish and also is available in Ottoman Turkish (*kutuz*) (Behzadi, 1996; Olgun, 1997). In Azerbaijan (Iran), the term *guduz* is also used among the villagers. Among these people there is an expression which is considerable in the view of veterinary medicine. The sense of this expression, used for cunning people is as follows: *Gurd yiyib guduz olub* that is 'He has eaten the wolf and has become rabid!" (Farahmand, 2003). This

shows that the people of Azerbaijan were aware of a reservoir for this disease in wolves. (The role of wolf in transferring of the disease is noticeable in Azerbaijan).

Diseases associated with mycoplasma: Contagious agalactia caused by *Mycoplasma agalactiae* in sheep is a triad of mastitis, arthritis and ocular disease (a gray color changing in eyes). Sometimes is also accompanied with respiratory disease, abortion and diarrhea. The local term *ye0l-bōz*, formed from *yel* a swelling or inflammation (in the joints), and *boz* to be gray (of ocular conjunctivitis), denotes explicitly the main associated symptoms of the condition.

Dermatological diseases: These diseases because of their exposed nature are the most known ones to the villagers, nevertheless because the symptoms of different dermatological diseases are similar; the distinction for a native viewer will be so weak. Consequently the native terms describing the skin and coat diseases of the animals are general and nonspecific.

Considering above, for example the term *damiro* is used for describing different dermatological conditions. In some regions of Azerbaijan, it is an equivalent for exema, and somewhere it is used in the meaning of wart and dermatitis. In dictionary Sanglākh, it has been mentioned as *damrako*, *damiratki* and also *damiro*, meaning scabies and skin itching. Some resources relate it with verb root *temra* and noun *tamir* (iron). It is characterized by desquamation (shedding of the epidermis), herpetiform lesions, pustules and ringworm infections (Clauson, 1972). The etymology perhaps relates to the rust-like appearance of the skin lesions. These words, however, are used by the native peoples for the meanings of scabies, psoriasis, wart, etc.

The term *shirna* denotes the scabies, alopecia and dermatitis. *Bodjā* is also common for describing the parasitological and fungal dermatitides..

The word *qotur*, in Farsi called as *gar*, is the well-known term, for describing the any form of dermatitis or scabies with alopecia. It may be attributed to the both parasitological and fungal lesions (Astarabadi *et al*., 1995).

Tetanus: Tetanus is a muscle spasm from action of the exotoxin produced by *Clostridium tetani*, characterized by generalized muscular rigidity and spasms, hyperesthesia, prolapse of third eyelid, trismus, convulsions, respiratory arrest, and death. All species are susceptible, and usually a history of a wound or other tissue trauma present.

A native Azerbaijanian term for tetanus is *şöş-qulaq* (literally: lifting the ears) denotes to an anxious and alert expression contributed to by an erect carriage of the ears. Another interesting term for this condition is *qeysar* or *qāysār*. The people of *Varzqān* consider it a type of frost-bite or cold. This mixing-up frost-bite and tetanus has a far historical background. Almost classical books mentioned tetanus as a frost-bite, namely Aristotle, who proposes holding animals ward as a remedy. Also Hippocrates describes the etiology of the disease as follows:

το` δε` ψυχρόν, σπασμούς, τετάνους, μελασμούς, 'ρίγεα πυρετώδεα

Cold produces convulsions, tetanus, blackening, feverish rigors. (Jones, 1957).

In some classical veterinary books (*Fars-nāmeh* or the book of Horse), tetanus is also considered as body rigidity due to cold. The proposed remedies include scaring and phlebotomy (Dinçer, 1967). The native term *ghāysār*, affected by Turkish word Ghāysāq, meaning stiff, dried and hard surface of the earth, is derived from Arabic *qaśar* cervicalgia, a stiffness or spasm of the neck, tetanus. This term is common among native farmers of Azerbaijan region and also has been mentioned in classical Hippological and Hippiatric texts, as we have already discussed it in detail.

Cowpox: Cowpox virus is a member of the genus Orthipoxvirus in the family poxviridae. Endemic infection of certain rodents occurs in Europe and East Asia. Cattle are a rare and incidental host. Spread in cattle is by contact. Cowpox is characterized by typical pox lesions on the teats and udder. Erythema, papules with a zone of hyperemia around the base, vesiculation, pustular stage and scab are seen.

The native term *Chichak*, literally blossoms, is used to pox, and in some sources exclusively for smallpox (Clauson, 1972). But it is used for animal pox or cowpox among villagers of Azerbaijan region.
The other term *Sappaja* meaning dispersed nodules on the skin, is also used for cowpox or a general term for describing the pox disease.

Hoof disorders: The native term *bichilghān*, derived from verbal root *bich*- meaning 'to cut', describes the fissure of horse hooves and foot rot. It has been also mentioned in Divan. This term is cognate with word *bichākh* meaning 'a knife' (Clauson, 1972). The folklore remedy of this condition is through using a mixture of bitumen and some other material (Dinçer, 1967).

Another terms, including *tāshirqā*, a general term for 'foot rot', and *sichānjiq* meaning 'foot rot in ruminants', are used commonly.

Ophthalmic infections: The term *boz* (literally: gray) denotes the any forms of eye bulb inflammations. Sometimes these inflammations are called as *āq* (literally: white in color) (Dinçer, 1967). The term *goz-bozārmaq* denotes the ophthalmitis.

Malignant catarrhal fever: Malignant Catarrhal Fever (MCE) is characterized by ocular (and nasal) discharge with variable degrees of edema of the eyelids, accompanied with fever, anorexia and agalactia. Native villagers use dowshānjiq for describing the condition. For remedy, they use periocular and nasal scarring.

Actinomycosis: Actinomycosis or actinobacillosis (also called as: lumpy jaw), caused by *Actinomyces bovis*, initially is painless, hard, immovable bony swelling on mandible or maxilla. Eventually discharge small amounts of pus through one or more openings in skin.

The native terms describing the lumpy jaw are *düyün*, literally meaning a knot, and the general term of *fer* or *fir* meaning abscess or swelling. In some regions of Azerbaijan it is called as compound *surāti-fir* 'with swelled face'. The term fir meaning face-swelling, may denote actinomycosis. In classical veterinary texts, the Arabic word of *khanāzīr* was used for actinomycosis.

Rinderpest: In Persian language it is called *gāvmīrī*, relating to the higher mortality of the cattle. A similar counterpart as *māl-girān* is used among Azarbaijanian people. The epizootics occurred twice during 1904 and 1931 among the cattle of Azarbaijan region with a high mortality.

Another old word is *yūt* which is etymologically of Mongolian origin. It has been also found in the early Turkic inscriptions in Orkhun Valley as an epidemic disease for men and animals. Clauson describes this term basically as 'weather so severe that it kills livestock', with extended meanings for other things which cause losses of livestock, and even the death of human beings, like lack of grazing and epizootic (or epidemic) disease. A Second Period loanword in Mongolian as *cut* 'famine; epizootic or epidemic disease'; in summary *yūt* has been used first for humans, second for animals, and third for death by the sword.

Respiratory disease: For pneumonia in horses, *saqo*, *sāqo* or *sāqqo* is commonly used. According to Clauson, *sokğu* or *soku* is derived from stem *sok-* meaning deep breathing or inspirations. It is now used in Eastern Turkic languages as *sokku* or *sokki*. There is also a term as *sakağı*, akin to *saqāva* in Ottoman Turkish meaning glanders, see *manqo*.

Pneumonia is called as *sataljam* which is termed as zāt-ul-riyeh in Persian and Arabic. *Manqo* seems to be a more severe form of *saqo*, mentioned above. It has been described as a contagious disease for horses, which is zoonotic for man. It may be also related to the respiratory form of glanders, see *sārijā*. We also consider it as equine pandemic influenza, which is akin to the disease have been occured in swine and avian subjects in our era.

Mastitis: The inflammation of the udders may be caused by different agents. The native terminology or describing this condition comprises *Ghārā-yelin* and *Yelini-shishma*. *Ghārā-yelin* (or a dialect variant as *Ghara-yelin*) denotes mastitis and also gangrenous astitis. *Yelin* means udder, and *Ghārā* in addition to meaning 'black', in the prefix usage means 'large or swelled'.

Yelini-shishmak, composed of *Yelin* meaning udder and *Shishmak* meaning to be inflated, denotes 1) inflated udder of perinatal period, and 2) mastitis.

CONCLUSION

Such terms in Turkish traditional texts and the native culture of Turk regions are widespread. Study of these terminological questions makes one curious about the working of the human mind. It can provide a deep and respectful view on the different cultures of the world that are the common heritage of mankind. It is an obligation of man to take care of this heritage.

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