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With 2 figures in the text

Short communication:

Linguatula serrata in The One Humped Camel (*Camelus dromedarius*) in Sudan, 2011

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طفيلى الملسنة المشرشرة (*Linguatula serrata*) طفيلى مشترك بين الإنسان والحيوان يتبع لعائلة لينجوتيوليدي (Linguatulidae). تحدث الإصابة في الإنسان عن طريق الطور اليرقي مسببة ما يسمي بداء الملسنات الأنف-بلعومى (nasopharynx liguatulosis) أومتلازمة الحلزون أو متلازمة المرارة ، أو عن طريق إبتلاع البيض مسببة داء الملسنات الحشوي (visceral linguatulosis). وجد طفيلى الملسنة المشرشرة فى كبد أحد الجمال (1.25%) أثناء إستقصاء للتغيرات الإمراضية لأنسجة أكباد إبل مصابة بآفات في الفترة مابين 2010 حتي 2011. جمعت و فحصت 80 عينة من أكباد إبل وحيدة السنام مختلفة العمر والجنس من سلخانة تمبول ، ولاية الجزيرة. وجود الملسنة المشرشرة فى أكباد الإبل أمر ذو إهتمام عظيم للصحة العامة نسبة لطبيعة الطفيلى المشتركة و خطورته الكامنة فى إصابة الإنسان طالما كان بعض البشر يأكلون الأكباد النيئة أوغير المطبوخة جيدا.

***Linguatula serrata* is a well-known zoonotic parasite belongs to the family Linguatulidae and infects both humans and animals. Humans can be infected by both the nymphal stage, causing a disease condition called nasopharyngeal linguatulosis, halzoun syndrome and Marara syndrome, and eggs which cause a condition called visceral linguatulosis. This study was designed to investigate the histopathological changes in livers of one humped-camels (*Camelus dromedarius*) slaughtered at Tamboul slaughterhouse, Gezira State, Sudan, 2011. For this purpose, 80 livers collected from camels of different sexes and age groups in different seasons were examined. One camel (1.25 %) was found to be infected with *L. serrata* nymphs when examined histopathologically. The prevalence of infection in camels is of major concern to public health, owing to the zoonotic nature of the parasite and the potential risk of infection to humans where humans consume raw or under-cooked liver.**

Linguatula serrata is a well-known zoonotic parasite, belongs to the family Linguatulidae, and infects both humans and animals; it inhabits the canine respiratory system (definitive hosts). The eggs are expelled from the respiratory passages of the definitive host and when swallowed by a suitable herbivorous animal (intermediate host), the larvae reach the mesenteric lymph nodes (MLNs), liver, lung, etc. in which they develop to the infective nymphal stage after six to nine moultings. The canine host becomes infected by eating the infected viscera. The parasite is tongue-shaped, slightly convex dorsally and flattened ventrally. Males measure 1.8–2 cm, while females measure 8–13 cm in length (Soulsby, 1982).

Humans can be infected by both the nymphal stage, causing a disease condition called nasopharyngeal linguatulosis or halzoun syndrome, and the egg which cause a condition called visceral linguatulosis. Human infection via consumption of raw or under-cooked liver and lymph nodes has been reported from Africa, South-East Asia and the Middle East (Drabick, 1987; El-Hassan *et al*, 1991). The clinical signs of nasopharyngeal infection include pharyngitis, salivation, dysphagia and coughing. In the case of visceral linguatulosis, the infection generally remains asymptomatic (Khalil and Schacher, 1965; Yagi *et al*, 1996). Attempts have been directed to study the prevalence rate of *L. serrata* in dogs (Yagi *et al*, 1996), sheep (Shekarforoush *et al*, 2004), goats (Razavi *et al*, 2004) and camels (Wahba *et al*, 1997).

In Sudan, *L. serrata* has been associated with hypersensitivity of buccopharyngeal mucosa in men resulting in a condition

called Marara syndrome (Yagi *et al*, 1996); in another location it is called Halzoun syndrome.

The present study was carried out during an investigation into the histopathological changes of affected livers in camel from Sudan. This study was conducted at Tamboul slaughterhouse in the Butana plains, mid-eastern (130 km South East Khartoum), Gezira State, Sudan.

The observation reported here is an incidental account of *L. serrata* nymphs in a camel liver that had been processed for examination of histopathological changes. The infected liver was enlarged with cyst of large sac. The cut sections revealed the cystic area. Histopathological analysis of liver revealed traumatic foci of migratory route of the parasite with cystic spaces. The empty spaces were expanded, filled with fluid and surrounded by necrotic areas. Lymphocytes in the periphery of the necrotic areas were apoptotic and their nuclei were chromatolytic. Granuloumatosis lesions were formed with lymphocytes, some neutrophils and macrophages around the necrotic area. The vascular lesion included perivascular cuffing and vacuities. The endothelial cells around the vascular wall were swollen and surrounded with infiltrated mononuclear cells. Thrombosis was found in the vessels. (Figs.1;2).

The observations reported here suggest that hypersensitivity of the nasopharynx associated with *L. serrata* could also be contracted from the camel. The traditional habit of eating camel raw liver is an integral part of the assumable transmission of this condition to man and, in the same way is being acquired from goats or sheep.

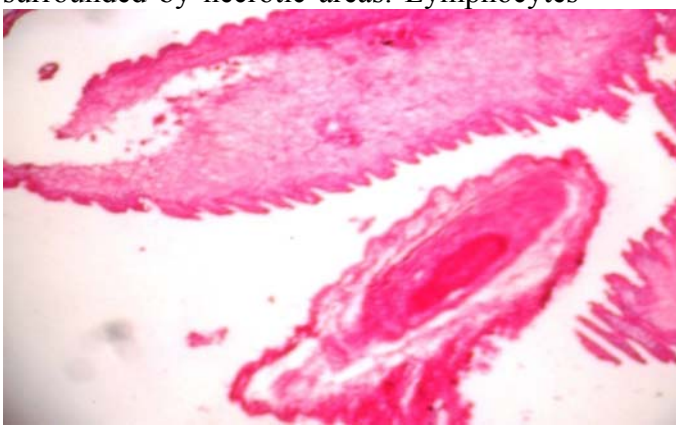

Fig. 1: A camel liver see nymph of *L. serrata* (H&E.X 40).

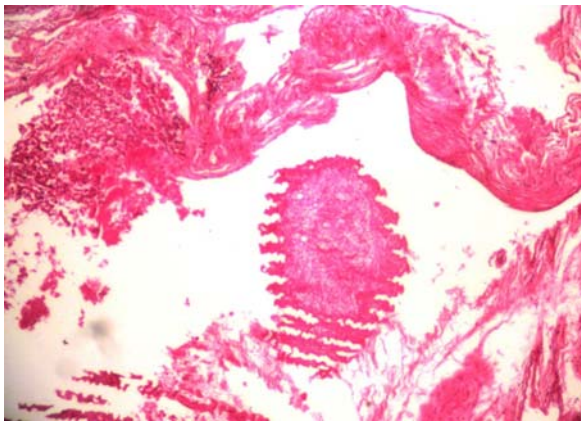

Fig. 2: A camel liver traumatic foci of migratory route of the parasite with cystic spaces. The empty spaces were expanded and surrounded by necrotic areas (H&E.X 40).

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