INTRODUCTION

Fasciolosis is a zoonosis produced by the Trematoda class, Fasciola genus; Fasciola hepatica (F. hepatica) species. It mainly affects herbivorous animals like sheep and cattle, and occasionally humans, causing disease in the bile ducts, where its adult phase is located. To complete its life cycle, F. hepatica needs an intermediate host, where it undergoes several development stages, and finally leaves it to start encystment on aquatic vegetation, especially watercress, giving rise to the infective stage. (Sánchez-Vega, 2017)

Fasciolosis was not a medically important disease, but this has changed due to the increased reports of immigrants or vacationers returning to their home country. Despite most of the reported cases, this trematodiases are located in Europe and nowadays it can be found all over the world. In America, most cases have been reported in the USA, Argentina, Peru, Bolivia, Puerto Rico, Costa Rica and Mexico. (Ashrafi et al., 2014)

In Mexico it was first reported by Toussant in 1895, but it was until 1936 when the first clinical case was published. (Toussaint, 1895; Caballero, 1936)

Currently, in Mexico, isolated cases of this zoonoses have been reported in Tabasco, Veracruz, Sinaloa, Oaxaca, Puebla, Morelos, Hidalgo, San Luis Potosí and Guanajuato. From an epidemiological perspective, the importance of plants used to feed livestock, for instance, Aira caryophyllea (hay) and Medicago sativa (alfalfa) (are concerns to human health); among others; Nasturtium officinale (watercress) and Lactuca sativa (lettuce). (Sánchez-Vega et al., 1989; Mas-Coma, 2005)

When a mammal ingests metacercariae (parasite infecting form) present in aquatic plants, the excyst in the duodenum and the jejunum, passes through the intestinal wall to stay in the peritoneal cavity for an average of 15 days, then advances through the peritoneum to the Glisson’s capsule, the one they drill to get into the liver parenchyma and remain there for an average of 60 days, until they become adult parasites and are able to produce eggs that are expelled with bile and stools. Adult parasites lay about 300 eggs daily. (Sánchez-Vega, 2017; Valero et al., 2009)

To reach the embryo stage, these eggs should be left in an underwater environment for an average of 10 days at an optimal temperature (22°C to 25°C). The eggs have a structure named operculum, which in its time, opens to allow the exit of the miracidium which can remain in the water floating for 24 hours, within this time it must find its first intermediate host, a freshwater pulmonate mollusk; Lymnaea genus, otherwise, it would die without fulfilling its...
biological cycle. Approximately three weeks after entering the mollusk, the first generation of redias spawn. If the nutritional conditions of the mollusk allow it, the second generation of redias grows in the digestive glands. From this stage, they progress into a new phase: cercariae, which abandons the mollusk and swims for few hours, which is enabled by its tail-like structure, after which they lose it and take on a rounded shape, initiating the encystment process where the metacercariae infecting forms of the trematode, is formed (Sánchez-Vega, 2017; Ashrafi et al., 2014; Sánchez-Vega et al., 1989; Valero et al., 2009; Sokolina et al., 2012)

Clinically, there are two periods: the invasive or acute stage and the biliary. The first one corresponds to the parasitic migration and may go unnoticed or be characterized by oscillating high fever, pain at right hypochondrium and gastrointestinal distress, such as nausea, vomiting and diarrhoea. Moreover; patients also report loss of appetite, dysphonia, coughs and hemoptysis. The second one occurs 3 to 5 months after ingestion of the metacercariae, the clinical manifestations are associated with the presence of the parasite in the bile ducts, and are characterized by pain in the upper right quadrant, hepatomegaly, fever, biliary colics, epigastralgia, food intolerance, pruritus, and eosinophilia. There are also cases where neurological and ophthalmic infections are reported (Bosnak et al., 2016; Mohamadnejad et al., 2016; Pozio, 2019)

A medically important background information to integrate the diagnosis, is the intake of raw vegetables such as watercress, radish, lettuce, spinach, alfalfa, and broccoli. (Ashrafi et al., 2014; Caballero, 1936; Mas-Coma, 2005; Sánchez-Vega et al., 2001; Carrada-Bravo, 2006; Nieto-Ocampo et al., 2002)

Although molecular and immunological studies are now available for the detection of these trematodiasis, the diagnosis is not easy since in the invasion phase it is difficult to find this nematode. During the biliary stage, its immune-modulatory and immune-suppressive potential facilitates co-infection by other pathogenic agents which might lead to wrong diagnosis, (Sánchez-Vega et al., 1989; Sánchez-Vega et al., 2001; Nieto-Ocampo et al., 2002; Apt et al., 2002; Biagi et al., 1957)

A complete blood count (CBC) is useful, since it detects leukocytes with eosinophilia up to 80% and occasionally hypergammaglobulinemia and liver function tests are altered. The coproparasitoscopic examination remains the most important test to diagnose this infection. (Sánchez-Vega, 2017; Mas-Coma, 2005; Valero et al., 2009; Sánchez-Vega et al., 2001; Parasitologic Methods, 1996; Valero et al., 2008).

CASE REPORT

A 39 years old male, who is a resident of a semi-urban zone in the State of Mexico, an anthropologist, single, denies chronic degenerative diseases but confirms a vegetable based diet report that from 10 months to date he has had gastrointestinal alterations, characterized by urgent epigastric pain, pasty stools and weight loss of 30.865 pounds. He went to the doctor who prescribed symptomatic treatment with which there was discreet improvement. However, as the months passed, the symptoms persisted, the pain radiated to the right colic accompanied by diaphoresis, tachycardia, polyneea, general malaise and weight loss, he consulted another doctor who made the diagnosis of probable choledocholithiasis, indicating laboratory and imaging studies. The patient dismissed the indication and rather preferred self medication, mainly with infusion-based remedies and unspecified homeopathic treatment. As the general malaise persisted, icteric dye is presented and weight loss continued, he consulted a third specialist, who made the diagnosis of probable hepatic carcinoma. His condition worsened with significant asthenia and adynamia, a fourth professional suggested HIV test.

Due to the persistent clinical signs, the patient went to the Parasitology Laboratory of the Faculty of Medicine UNAM, presenting poor general condition, cachexia, and jaundice, generalized pruritus, significant asthenia and adynamia. After medical examination, physical exploration and considering his vegetarian diet background, liver fluke infection by the trematode of *F. hepatica* was suspected.

CBC, liver function tests and progressive samples of stools (coproparasitoscopic sedimentation technique tests) were carried out. (Parasitologic Methods, 1996)

Complete blood count reported hemoglobin levels of 8.1 g/dL, hematocrit at 32%, leukocytes concentration of 10 500 x 10³/L, eosinophiles concentration of 8000/μl; liver function tests with high alkaline phosphatase and transaminase, and negative results for HIV test.

With the coproparasitoscopic sedimentation technique parasitological stool examination, a large amount of *F. hepatica* eggs were located (Figures 1 and 2).

A single dose of 10 mg/kg triclabendazole was prescribed in a 3-take format treatment.

On the third day post-treatment, the patient showed signs of improvement, he was also given treatment to correct the anemia and CPS check-up appointments at 7, 15, 30, 45, 60, 75 and 90 days were scheduled. The patient was discharged after 90 days for showing medical improvement and normal results in laboratory tests.

**DISCUSSION**

Currently, medical literature, identifies *F. hepatica* as an important pathogenic agent, but its real prevalence in humans is still unknown due to its acute phase. It is asymptomatic and in the chronic phase it is confused and multi-diagnosed. All this leads to unsuccessful prescribed
multi-treatments and therefore chronicity and complications of this disease with even neurological, psychiatric or ophthalmic manifestations. (Ashrafi et al., 2014; Sánchez-Vega et al., 2001; Nieto-Ocampo et al., 2002; Apt et al., 2002; Biagi et al., 1957; Valero et al., 2008; Adachi et al., 2005; Esteban et al., 2003).

It should be noted that fasciolosis like many other parasitosis, is re-emerging as a medically important pathogen, and as in the present case, the variety of clinical manifestations and the lack of knowledge made the diagnosis difficult, conditioning the patient to be seriously affected.

As stated above, the fact that fasciolosis is considered a "traveler's disease" in endemic areas of fasciolosis, there is no proper sanitation in food preparation but poor waste management; it is important then, that healthcare workers are properly trained and constantly updated to diagnose, treat and prevent infectious and parasitic diseases, which continue to rank in mortality and morbidity all around the world.

To help solve this difficult task, there are found in the literature novel molecular or serodiagnosis tests, which have been effective in many parts of the world but in others they have neither the budget nor the equipment to be able to develop them, as it happens in endemic areas with extreme poverty conditions. It is imperative to consider ecological, cultural and epidemiological factors in order to carry out actions aimed at prevention actions, such as washing and disinfecting vegetables, avoiding eating raw or insufficiently cooked meat and ensuring that the water is drinkable. (Pozio, 2019; Zumaquero-Ríos et al., 2013)

Coproparasitoscopic examinations are still useful today, but to be able to diagnose this trematodiases, the most effective thing is to think about it as one of the possibilities.
that causes the illness. In this clinical case report, treatment with triclabendazole was advantageous, but there are cases where resistance towards this drug is observed, in that case, nitazoxanida is used as an alternative. (Millan et al., 2000; Gilles et al., 2002; Fox et al., 2000).

REFERENCES


