ABSTRACT:
Echinococcosis or hydatid cyst (HC) is considered one of the major parasitic infections in Libya that causes many health problems and economic losses in communities. The aim of the present study was to determine the prevalence of HC in patients referred to surgery in three hospitals in Benghazi from 2000 – 2007. The study was conducted on 329 patients diagnosed with hydatid cyst disease and treated surgically at the three hospitals. Cystic echinococcosis (CE) affected more females 205 (62.31%) than males 124 (37.69%). Cysts were found in liver and lung in 61.8% and 31.6% of cases, respectively. In addition, cysts were found in brain, muscle, kidney eye, and peritonea in the remaining 6.6% of cases. A significantly higher number of hydatid cysts were recorded in the liver than in other sites (P<0.001). The ratio of hepatic hydatidosis to pulmonary hydatidosis was about 2:1. Unusual cyst locations in brain and bone, followed by pelvic area, spleen, and pancreas were also observed. Single organ involvement was found in 95.6% of the patients. The results revealed that rural dwellers cases (outside Benghazi) was more infected with hydatid cysts (53.5%) than urban; Benghazi city (46.5%). further studies are needed to determine the prevalence, economic impact, risk factors of the disease, and the etiologic factors of hydatid cysts in Benghazi, Libya.

KEY WORDS:
Human Hydatidosis, Libya, Surgical Cases

INTRODUCTION:
Hydatidosis is one of the most prevalent zoonotic diseases in the world, causing major economical and healthy problems. The agent of the disease is E. granulosus, a parasite of cestodes, having its final host as dog and a variety of hosts including human as intermediate hosts. This parasite is cosmopolitan and posses the second rank in consideration of helminthic diseases significance (Muller, 2002). Human cystic echinococcosis (CE) (cystic hydatidosis) is a chronic zoonotic disease that results from infection with the larval stage of the dog tapeworm, Echinococcus granulosus. The disease is highly endemic in most countries of the Mediterranean basin, including North Africa and the Middle East (Matossian et al., 1977). It has been reported as an important public health problem in Jordan, Egypt, Morocco, Tunisia (Pandey et al., 1988; Shambesh, 1997). Thus, Libya is surrounded by countries endemic for CE, and several publications have recognized the existence of human CE cases among Libya (Gebreel et al., 1983; Gusbi, 1988; Tashani et al., 2002; Kassem, 2006). Echinococcosis or hydatid cyst (HC) is considered one of the major parasitic infections in Libya that causes many health problems and economic losses in communities. In Libya, echinococcosis is a real sheep-man problem (Kassem, 2006). In Libya, hydatidosis is a very old and still an extending problem in Libya. The disease was described as hyperendemic (Matossian, et al., 1977). The disease within the Libyan population was > 1 per 100,000 (Shambesh, 1997). In Libya, few epidemiological surveys have been conducted amongst the general population (Dar and Taguri, 1978; Gebreel et al., 1983; Shambesh et al., 1999).

The aim of the present study was to determine the prevalence of hydatid cysts in patients referred to surgery wards of three hospitals in Benghazi from 2000 - 2007.
MATERIAL AND METHODS:

This study was conducted on hospitalized patients operated for hydatid cysts at three Hospitals: El-jala, El-Tahrer, and El-koufia hospitals in Benghazi, Libya during 2000 to 2007. A total of 329 patients were evaluated in this study. Data were collected from the medical records of patients in the archives and analyzed in terms of age, gender, cyst localization and residence.

RESULTS:

The total number of cystic echinococcosis surgeries recorded in the three hospitals over 8-years period (2000 - 2007) in Benghazi was 329 cases (Table 1). Age distribution pertaining to 329 confirmed cases of human cystic echinococcosis are shown in table 2. The youngest patient operated was 15 years old and the oldest was 82 years old. Age group 35– 44 years was the most affected and represented 19.76% and the lowest infection was among ≥ 65 age group (12.8%) of the total number of cases. Hydatidosis apparently affected females more frequently than males, since 205 (62.31%) of the patients were females and 124(37.69%) were males (Table 3).

Cyst location:

The incidence of hydatid cysts in various anatomical sites of the operated patients are shown in table 4. The maximum overall infection rate accounting for 203(61.7%) instances occurred in the liver, followed by the lungs (31.6%). The cysts were rarely seen in the spleen (0.3%), pelvis (0.3%) brain (0.3%), bone (0.3%), and pancreas 2 (0.6%).

Multiple organ involvement:

Amongst the 329 patients, single organ involvement was noted in 307 cases (95.13%) and multiple organ involvement was seen in 16 (4.8%) cases (Table4). Multiple organ infections included liver and lung.

Residency:

Of the 329 hydatid patients 153 (46.50%) were permanently resident in Benghazi city and the remaining 176(53.5%) referred to as the rural dwellers cases (outside Benghazi).

DISCUSSION:

The prevalence of human hydatidosis is well appreciated since in many cases the disease manifests few specific signs and symptoms and even it may be symptomless. The surgical incidence rates, therefore, remain the basic index for evaluation of the efficacy of control measures. A helpful system
of the disease measure is to calculate the annual index, which records the number of hydatid cases diagnosed in a given area each year for every 100,000 members of the population (Karpathios et al., 1985; Bchir et al., 1989).

Cystic hydatidosis is one of the most important zoonotic disease in the world. High parasite prevalence is found in the middle East, as well as Arabic North Africa (Anderson, 1997). Hydatid disease is a major zoonotic disease in Libya, constituting a serious public health problem (Fossati, 1970; Gebreel et al., 1983; Gusbi, 1988). The incidence of the disease within the Libyan population is estimated to be >1 per each 100,000 (Shambesh, 1997). Dar and Taguri (1978) reported 50 surgically and serological confirmed cases of human hydatidosis, in East Libya. An interesting four cases of a cute a abdominal pain due to hydatid cyst was reported by Gamil (1979) in Benghazi. Using ELISA, Gebreel et al. (1983) and Shambesh et al. (1999) recorded 10% and 1.6% prevalence of echinococcosis in northern Libya, respectively. Shambesh et al. (1992) and Tashani et al. (2002) recorded 2% and 306 surgically confirmed human cases of cystic Echinococcosis in the medical records in Benghazi, respectively.

Studies in Libya have stressed the importance of dogs as a source of infection to human and livestock (Gusbi, 1988; Awan et al., 1990). The present study showed that both males and females were found to be infected by hydatid cysts and the incidence rate in females was higher than males. The same findings were reported previously in Libya (Dar and Taguri, 1978; Gebreel et al., 1983; Sambesh et al., 1992; Tashani et al., 2002). Also, the same results were recorded from other countries (Zahawi et al., 1999; Bchir et al., 1991; El-idrissi et al., 1997; Rafiei et al. 2007; Alghoury et al., 2010). This difference in infection between males and females may be due to differences in behavior attitudes and life style, socio-economic and cultural status from country to other (El-idrissi et al., 1997; Shambesh et al., 1999; Tashani et al., 2002). In the Libyan community, a considerable proportion of females continue to have some activities related to animal breeding and/or agriculture. On the contrary in Kyrgyzstan, it was reported that males were more exposed to the infection than females (Torgerson et al., 2003).

Libya is known to have a high prevalence of human cyst echinococcosis (Shambesh, 1997). The finding that all age groups, including youngs and adults were well represented in the cystic echinococcosis cases. This implies that both youngs and adults are susceptible to infection. Since about one-third of the cases were 20 years of age, active transmission has occurred and the disease may be on increase. It was observed that the most common affected organ was the liver (65.7%), followed by the lung (31.6%). The higher rate of hepatic infection may be attributed to the fact that the liver acts as the primary filter in the human body and the lung is often thought to be the second filter (Muller et al., 2002). A similar picture of organ infection with this parasite was reported by other studies (Schantz, 1986; Pawlowski et al., 2001; Taori et al., 2006).

The results showed a high infection rate in patients resident outside Benghazi than those resident in Benghazi. These results agree with those of Rafiei et al. (2007) in Iran and may be explained as the opertunity of the patient’s exposure to the Echinococcus eggs. Gebreel et al. (1983) stated that the most obvious source of infections is dogs in rural areas and stray dogs in urban and semi–urban ones. Thus, the present findings could be related to the free movement of dogs and the high number of stray dogs which were seen in and around the city in different times of the day and night.

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