

INCIDENTALLY DISCOVERED ABDOMINAL CALCIFICATIONS – A LIBYAN PROFILE

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ABSTRACT

Purpose: Abdominal calcifications are often detected on routine plain abdominal radiographs and are often not the cause of patients' symptoms. These are more commonly seen in Libya and are often ignored by the clinicians. The aim of this article is to assess the exact incidence of abdominal calcifications in Libyan patients and the optimal management.

Material & Methods: Records of 498 patients randomly selected from four hospitals in Libya were retrospectively evaluated. Plain abdominal radiographs were evaluated for any evidence of calcification by two independent blinded radiologists. The concurrent findings were considered to be positive for calcification and the cases with discordance between two radiologists were ignored.

Results: There were 19 patients with abdominal calcifications out of which 10 (52.6%) were males, and 9 (47.4%) females. The abdominal calcification was not seen in children and young age groups (< 30 years).

Conclusion: Abdominal calcifications have a high incidence in Libya, probably due to endemicity of hydatid disease. The finding is very often ignored by the referring physicians and should always be evaluated for hydatid disease.

Keywords: Abdominal calcification, hydatid cysts, radiographs.

INTRODUCTION

Abdominal calcifications are often seen on plain radiographs in patients presenting to out-patients department or emergency with vague abdominal complaints which, in most of the cases, may not be related to the abdominal calcification. These are most commonly ignored by the referring physicians. In Libya, due to endemicity of hydatid disease, the abdominal calcifications are commonly seen.

Hydatid disease is endemic in the Middle East and around the Mediterranean. Infestation by hydatid disease in humans most commonly occurs in the liver followed by the lungs. Hydatid cysts can occur in any organ or tissue throughout the human body (1,2,3).

Worldwide hydatidosis is essentially a disease of the sheep and cattle. In Libya the resident packs of stray-dogs to be found in all over the cities. Undoubtedly, the country-wide stray dog problem plays a major role in the dissemination of the disease (4).

MATERIALS AND METHODS

Retrospective analysis of medical records of randomly selected 498 patients was done. Criteria of inclusion in the study were all patients subjected to plain abdominal radiograph. There were no exclusion criteria.

Two blinded independent radiologists reviewed all the plain films. The films with concordance between the findings of both radiologists were labelled as positive for calcification'.

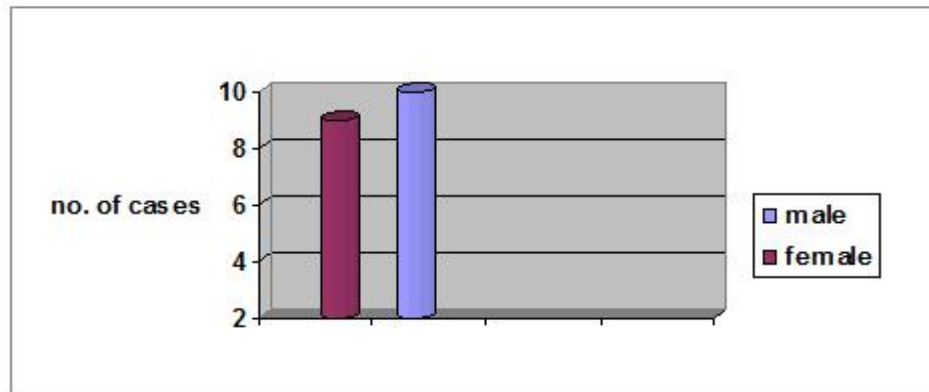
The gender, age profile, social background of the patients was also recorded.

RESULTS

There were 19 cases (3.8%) with abdominal calcifications on plain abdominal radiographs.

Plain radiographs of abdomen (AP View) showed striking findings of multiple different extensive calcification, round or oval shadows of varying sizes and shape scattered all over the abdomen.

Out of 19 positive cases, 10 (52.6%) were males and 9 (47.4 %) females.



Number of cases with calcification in male and female groups

Maximum incidence was seen in age group 61-75 years with seven patients (36.8 %).

There was equal incidence in age groups 31-45 years and > 75 years of 3 patients each (15.8%).

Six 'positive' cases were seen in age range 46 – 60 years (31.6%).

No 'positive' case was seen in younger patients < 30 years.

DISTRIBUTION OF CALCIFICATION BETWEEN AGE GROUPS

Age group (years)	No. of patients	Percentage
< = 15	0	0 %
16 – 30	0	0 %
31- 45	3	15.8 %
46 – 60	6	31.6 %
61 – 75	7	36.8 %
> 75	3	15.8 %
Total	19	100 %

DISCUSSIONS

This retrospective study was carried out in Libyan hospitals. The study showed:

Abdominal calcification is endemic in Libya. It is 3.8% of the population, where it may not be known in many regions of the world including Europe.

The sole diagnostic method for intra-abdominal calcification is plain abdominal x-rays which reliable, safe, inexpensive and easy to be performed.

The diagnosis was evaluated surgically or by other modality of diagnosis e.g. Ultrasonography and CT Scan. Other types of calcification like calcification in tumor, stones can be differentiated from abdominal calcification by x-ray, ultrasonography, CT Scan, surgery and histopathology.

Intra-abdominal calcifications were not seen between children and young adults below 30 years age group and frequently increase with increasing age tile reaching the maximum between 61 and 75 years age. After 75 years the calcification declined. Male to female ratio = 5.5:4.5.

To our knowledge there is very limited presentation of this type of calcification and its cause in the radiological journals and textbooks or in medical database like Pubmed.

Hydatid disease can occur almost anywhere in the body. Although liver and lung are the most commonly involved organs hydatid disease can occur in all viscera and soft tissue; spleen, kidney, skin, bone, heart, ovary, peritoneal cavity and abdominal wall. (5,6,7,8). The cysts develop

secondary to spontaneous or iatrogenic rupture of hepatic, splenic or mesenteric cysts and can be located anywhere in the peritoneum (9,10).

Although any organ of the body may become the site of larval development of hydatid disease in man, Dar and Tajuri showed that in Libya, there was a preponderance of liver cases over lung cases, suggesting that the liver acts as the primary filter of infection. The incidence of affected abdomen (7.8%) and female (53.9%) affect more than males (46.1%).

Most of the patients were usually asymptomatic with few suffering from abdominal pain due to adhesion.

As outlined earlier in the series a small number of densities may be seen on plain radiographs (15).

Plain abdominal film showed multiple calcified abdominal masses ranging from 0.5 to 4.0 cm and scattered in relation to large intestine. The larger of these were seen to be attached to the large omentum and sometimes felt by the patients. The smaller masses were buried in the serosa or/and hanging in the pelvis (4).

Oval or circular calcifications are characteristic. Arc-like daughter cyst calcifications within the mother cyst may occur also. They are usually asymptomatic. Multiple small cysts with calcified walls lie within large areas of amorphous calcifications are seen (16). The calcification shadows moved over a fairly wide area when the films were taken in different positions such as recumbent and upright. The free mobility indicated that the probable site of lesion was the mesentery (17).

Ultrasound examination showed multiple solid calcification masses in the mesentery.

CT scan also demonstrated multiple calcification masses around the bowel, spleen and liver tissues.

Colonoscopy examination showed round external pressure marks inside the lumen of the colon, suggesting that the calcification masses were extraluminal (18).

Histopathologically; the calcification masses were cyst-like in nature. The capsule of the cyst was firm, irregular and calcification. The wall could be differentiated into 3 layers; outer, middle and inner.

In some cysts areas lined with acellular, hyaloid material which showed lamellar structures, calcification entirely or containing calcification granules (19).

Hydatid cyst is prevalent especially in sheep and cattle farming areas of Asia, North Africa, Middle East, south America and Australia (20).

Earlier, Fossatiet.al (4) had put hypothesis that hot desert winds carrying dust containing hydatid ova from faeces of dogs and Jackals may play a similar role in the transmission of the disease in Libya. For the present, there can be little doubt that the oral route through food and water contamination is the most important portal of entry in man in Libya. Whereas worldwide human hydatidosis is essentially a disease of the sheep and cattle areas, in Libya we were able to establish that the disease is not exclusively confined in the rural agricultural areas. Cases occur even in the larger urban areas. This is hardly surprising considering the resident packs of stray dogs to be

found all over the city. Undoubtedly, the country-wide stray dog plays a major role in the dissemination of the disease.

Rupture of cysts into the peritoneal cavity is quite frequent (11,12,13,14).

Hydatid disease is endemic in Libya as endemic in other Mediterranean and Middle East Countries. It is still a serious problem in Libya, where it is endemic. Unusual presentation of this common disease is reported and may affect any organ (21).

Rupture of hydatid cysts ranged in age 20-60 (average 37) years. Rupture in males more than in females (22). Due to the fact that rupture of the cysts into the peritoneal cavity is frequent, calcified masses are seen around the mesentery and the surface of the liver, spleen and calcification oval nodules of fat are frequently found free in the peritoneal cavity at laparotomy and are thought to originate as calcification epiploic appendages and detached from the colon.

This pattern of abdominal calcification in Libya is most likely due to calcified hydatid cysts after long time of infestation rather than other cause.

CONCLUSION

Abdominal calcification is a common finding in Libya that most likely due to calcified hydatid cysts should be differentiated from other abdominal calcifications due to tumours, renal or gall stones or mycobacterial infections by further radiological and serological tests for suitable treatment. Plain abdominal radiograph is the best diagnostic method as it is safe, inexpensive, easily available and easy to perform. CT Scan is quite well diagnostic method.

FIGURES



Figures.1 and 2

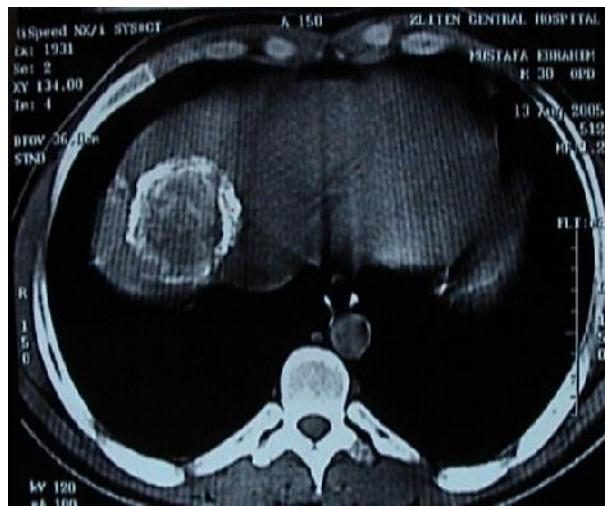


Figures 3 and 4



Figures 5

(Figures 1 to 5) PA views abdominal x-rays showing abdominal calcifications which distributed throughout abdominal field particularly at the peritoneal compartments.



Figures 6

(Figure 6) CT scan of abdomen showing calcification due to hydatid cyst at liver.

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