CHIRURGIE THORACIQUE / THORACIC SURGERY

PEDIATRIC THORACIC HYDATID CYSTS IN PERU : CASE REPORT AND REVIEW / KYSTES HYDATIQUES THORACIQUES CHEZ L'ENFANT AU PÉROU : CAS CLINIQUE ET REVUE DE LA LITTÉRATURE

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Abstract

Hydatid cyst secondary to the parasite *Echinococcus granulosus*, involving the lung parenchyma, is an endemic disease in Peru, especially in the rural areas involved with animal domestication. Despite aggressive government public health directives for prevention, poor recognition and compliance remain major factors in human infection, especially in children. Medical treatment alone is not effective in the majority of either asymptomatic or symptomatic patients with documented thoracic disease. Surgery remains the primary recommended approach. Over 30 thoracic procedures are performed annually at the Instituto Nacional de Salud del Nino, in Lima, Peru for thoracic hydatid cysts. The present clinical case illustrates the contemporary surgical approach to this preventable disease in Peru, along with some unifying surgical concepts.

Key Words: Hydatid cyst disease**;** Capitonnage**;** Endoplication Simple cyst; Lung sparing surgery; Endemic disease.

Résumé

Le kyste Hydatique du parenchyme poumonaire dû à une infection par le parasite « Echinococcus granulosus », est une maladie endémique au Pérou, particulièrement dans les zones rurales concernées par la domestication animale. Malgré les conseils répétés du ministère de la santé publique pour la prévention, la faible connaissance et le non respect des règles demeurent les facteurs majeurs de l'infection humaine, particulièrement chez les enfants. Le traitement médical seul n'est pas efficace chez la majorité de patients asymptomatiques ou symptomatiques porteurs du kyste hydatique pulmonaire. La chirurgie reste la principale approche recommandée. Plus de 30 interventions chirurgicales thoraciques sont exécutées annuellement à l'Institut National de Salud del Nino, à Lima, Pérou, pour des kystes hydatiques thoraciques. Le cas clinique présent illustre l'approche chirurgicale actuelle et harmonisée de cette maladie au Pérou.

Mots Clés : Kyste Hydatique; Capitonnage; Simple Endoplication kystique; Chirurgie pulmonaire; maladie endémique.

Introduction

Hydatid cystic disease is caused by the parasite tapeworm Echinococcus granulosis. It is endemic in Africa, the Mediterranean region, the Middle East, South America, Australia, and New Zealand (**figure 1**)[1,2].

There are 2 other clinical forms of echinococcus in humans, the alveolar and polysystic forms, secondary to E. multilocularis in the former, and E. vogel, or E. oligarthrus in the latter[1,2]. These less common species will not be discussed.

E. granulosis is especially prevalent in rural Peru and other endemic regions[1,7]. These rural areas have large domestic animal raising regions, especially sheep, goats, cattle, and hogs. Humans are one of the intermediate hosts. Whereas the target organ is the liver (50-70%) versus lung (20-30%) in adults, the opposite is true for children. Coexistent lung and liver disease is not common, occurring in <15% of cases[4]. Early symptoms are more common in children, given more rapid concentric enlargement of the cyst with compression of adjacent structures, and an increased incidence of rupture with bronchial perforation. Medical treatment alone is not totally effective in the majority of patients, and is reserved primarily for those who have multiple bilateral cysts, prohibitive associated morbidity, or will not tolerate surgical treatment[8,9]. Surgery is the currently accepted primary recommended modality of care in the majority of cases, including both the asymptomatic and symptomatic groups. Lung sparing surgery is especially important and recommended in the pediatric age group. A variety of surgical techniques have been described and advocated for the variety of clinical presentations. The present case illustrates the contemporary approach to hydatid lung cyst disease in children in Peru.

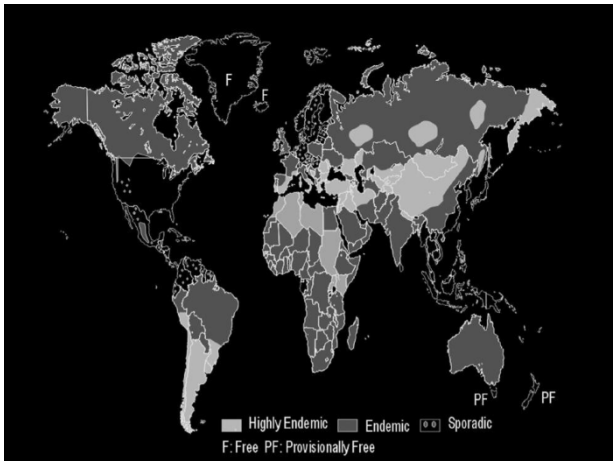

Figure 1: Approximate global distribution of *E. granulosus* (as of 2002). The exact identification of areas of normal and high endemicity is difficult because of incomplete or lacking data. Modified from WHO/OIE 2001

Case Report

A 9 year female, from Cerro de Pasco city in rural Peru, presented to Instituto Nacional de Salud del Nino, in Lima, Peru on July 13, 2008. The mother recounts that her daughter's symptoms started 30 days prior to admission, characterized by an insidious and progressive dry cough, sporadic posterior chest pain, and associated hemoptysis for 8 days prior, with approximate volume of 250 ml. (2 cups). She presented to her local hospital where she remained hospitalised for 8 days, and was subsequently transferred to the National Institute of Health of the Child for further evaluation and treatment.

The past history revealed that the patient was the product of fourth gestation, with no prenatal care, and uneventful birth. Development milestones were normal, and immunizations were current. Physical examination revealed temperature 37ºC, respiratory rate 24, heart rate 86 beats per minute and regular, pulse oximetry satsuration (SpO2) 98 %, and weight 31.5 kg. Heart and lung examination were unremarkable.

Laboratory studies included: Hematocrit 46 %, Hemoglobin 14.50 gm/dL, Leukocytes 7,810, Eosinophiles 9 %, Erythrocyte sedimentation rate (ESR) 15, Blood Group A (+), HBagS (hepatitis screen) not reactivate, HIV negative, Glucose: 172 mg/dl, Calcium 9.9 mg/dl, Na 143, K 3.20, Cl 112, and Western Blot Positive. The chest x-ray (CXR) revealed bilateral solitary cysts, with both suspicious for being complicated (**figure 2**).

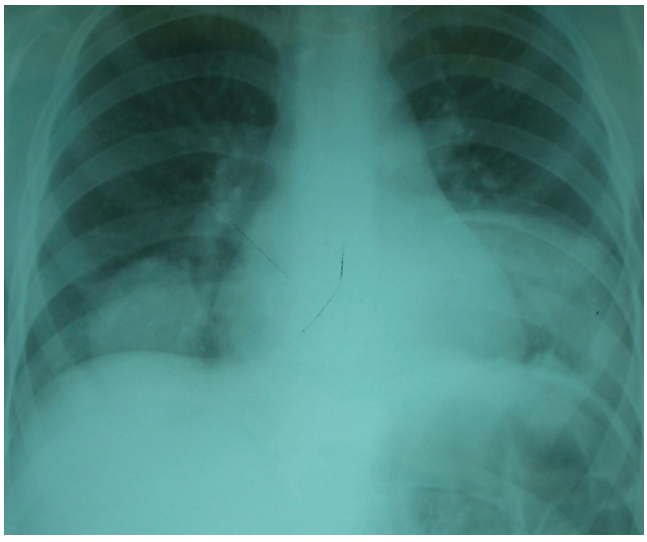

Figure 2: CXR showing bilateral complicated cysts in lower lung fields