

Editorial



Echinococcosis - Cut to Cure but What About Control?

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Hydatid disease or echinococcosis is an important zoonosis, and is a serious public health problem causing economic implications globally. There are around 65 million people infected in approximately 100 countries.¹ It is a re-emerging disease in certain regions with an incidence of 15/100,000 population.² Human cystic echinococcosis (CE) is the most common presentation and probably accounts for more than 95% of estimated 2-3 million cases around the globe. The disease is endemic in India. It features among the neglected zoonoses of major public health importance. The annual incidence varies from 1-200/10⁵ persons. High prevalence is reported from Kashmir, Andhra Pradesh, Tamil Nadu and Central India.³⁻⁵

The most commonly infected organs are lungs and liver. Cysts may develop in any internal organ or tissue (heart, bone, muscles, nervous system) by hematogenous dissemination. Liver is the primary location in 55-70% of cases followed by the lung in 18% to 35%.⁶

In most cases (72% - 82%) primary lung hydatidosis is single. Multiple hydatidosis (20%) may be unilateral or bilateral. Epidemiologically, CE occurs mostly in poor communities raising sheep and other livestock and involving dogs as guarding animals.

The incidence of human CE is closely related to the prevalence of the disease in domestic animals. Humans become exposed to eggs of tapeworm after close contact with dog or its contaminated environment. Typically larvae that pass through the liver are trapped in pulmonary arterial capillaries and develop into hydatid cysts.

Chronic hydatid cor pulmonale can occur due to obstruction of pulmonary artery. Secondary bronchogenic hydatidosis causes disseminated lesions, which can lead to hydatidoptysis – vomiting of small entire hydatids.⁶

Multiple radiologic signs are helpful in the diagnosis. The diagnosis is more accurate in recent times because of availability of ultrasound, CT scan and MRI.

World health organization (WHO) has supported development of internationally standardized classification of ultrasonographic images in cystic echinococcosis.⁷ For management purposes the cysts are divided into 3 groups- active, transitional and inactive. The classification enables worldwide comparison of cyst types and recommended treatment for different cyst types.⁸

CT scan is helpful in doubtful cases because internal structures of cysts can be analyzed. Inverse crescent sign, signet ring sign, high CT density (-40-160HU) and thick wall are recognized

as features of pulmonary hydatid cyst.⁹ Demonstration of air bubbles within the cyst together with ring enhancement is strong indicator of infected hydatid cyst.¹⁰

The serologic tests are complementary to laboratory and clinical investigations. Current standard serology for CE is based on detection of IgG antibodies to hydatid cyst fluid derived native or recombinant antigen B subunits either in ELISA or immunoblot formats. These are less sensitive in lung hydatidosis than those with localized liver disease (80-94%). Serologic tests may be helpful to confirm hydatid origin of a cystic lesion and permit serologic monitoring of medically or surgically treated patients. False positive tests are observed in other helminthic infestations.

In 1980s, a medical taboo that echinococcal cysts must never be punctured was broken.

PAIR (puncture, aspiration, injection and reaspiration) and percutaneous thermal ablation have been described for treatment of hydatid disease, though they have been more successful for hepatic lesions.^{11,12}



Multiple series with PAIR procedure have been described - 95% ethanol, 20% hypertonic saline, 0.5% silver nitrate have been used as scolicidal agent. These are less invasive than conventional surgery. In 2001, WHO established guidelines for use of PAIR procedure besides medical and surgical therapy. PAIR is safe as long as adequate anti parasite cover is given with albendazole and the hospital is experienced in interventional ultrasound.

Mebendazole, Albendazole and Praziquantel have activity against *E. granulosus*. Medical therapy by itself has cure rates of 30% and other 10-20 % patients have substantial regression of cyst size.⁶

Surgery is the main treatment of pulmonary hydatid disease and aims to remove the parasite and treat associated parenchymal, bronchial or pleural disease. Relapse rate of 11.3% is reported. Video assisted thoracic surgery (VATs) can be safely used in selected cases. Surgery is safe with low mortality (0-5%) and morbidity (0-13%).^{13,14}

In this issue of the journal, Ghoshal et al have presented 5 year data of hydatid lung disease from Kolkata.¹⁵ They have retrospectively analyzed the data of 106 patients with lung hydatidosis where surgery was the main stay of treatment in 82 patients. The patients were mainly offered pericystectomy (91%). Thirteen patients were treated with albendazole alone. Surgery was found to be safe and there was no mortality. A similar study has been reported by Akhter et al from central India⁵ where they observed that patients with lung involvement reported earlier to

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the hospital in view of symptoms as compared to patients with liver involvement. Although refined modalities of treatment as discussed earlier are available, at rural level it may not be always feasible to offer the same to patients.

Immunologic and parasitic antigen detection studies are in progress to produce an efficient vaccine for dogs and sheep. Advances in knowledge, new control tools including new diagnostic methods, regular dehelminthization of dogs and animal vaccines provide an excellent prospect for improved control programme for hydatid disease.

In urban India, due to economic development and improved government legislation of abattoirs there is decreasing prevalence of hydatidosis in contrast to rural areas.

In an article on 'Continuing challenge of infectious diseases in India' in the Lancet, Dr T Jacob John observes that 'India needs to rethink and revise its health policy to broaden the agenda of disease control with a major focus on public health in addition to the current focus on medical care.'¹⁶ This will go a long way in controlling the inadequately controlled and neglected zoonosis like hydatid disease in all parts of India.

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