Evaluation of Ethyl Alcohol in Treatment of Cystic Echinococcosis Using Puncture, Aspiration, Introduction, Respiration (PAIR) Technique

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Abstract

This study was carried out to evaluate the effect of 95% ethyl alcohol in PAIR technique. Animals with natural infection were randomly divided into two groups. In the test group, cysts (n=7) were punctured, cyst fluid drained and injected with 95% ethyl alcohol while in the control group, cysts (n=9) were only punctured and cysts fluid drained. The procedure was done under ultrasound guidance. Ultrasound showed collapse of endocysts after cyst puncture in both groups. One month later, there was decrease in cyst size, increased echogenicity and complete or partial detachment of the endocyst. Post mortem examination of the cysts in test group showed gross degeneration with marked fibrosis of the surrounding liver tissue. Incision of the cysts revealed turbid yellow cystic contents and degenerated endocysts. Microscopically, only debris and dead protoscoleces with detached hooks were seen. In the Control group, the cysts appeared grossly intact but flaccid. Incision of the cysts showed clear fluid with intact endocysts. However, microscopic examination of the cyst fiuid showed that the protoscoleces were dead with detachments of hooks. In the test group, histopathology showed marked host cell reaction consisting of infiltration of the adventitial layer with neutrophils, eosinophils and plasma cells. In addition, the liver tissue was destroyed and replaced with young fibroblasts and mesenchymal cells. In the control group, histopathology showed detachment of the laminate layer of the cyst from the adventitia, inflammatory cells in both the adventitia and the liver tissues. However the degree of inflammation was markedly less in the control than in the test group. The findings suggest that puncture alone may be sufficient to kill the protoscoleces, possibly due to detachment of the endocyst from the host wall. Key words: Cystic echinococcosis, PAIR, ethyl alcohol, sheep, goats.