

Zoonoses and Food Hygiene News

Vol. 16 No. 3 July to September 2010

Government of Nepal, Registration Number: 148/049/050

Editor-in-Chief
Dr. Durga Datt Joshi

Managing Editor
Dr. Billy R. Heron, USA.

Editorial Panel
Prof. Dr. P.N. Mishra
Dr. P. R. Bista
Ms. Minu Sharma
Ms. Meena Dahal

Email: ddjoshi@healthnet.org.np, **Website:** www.nzfhrc.org.np

Zoonoses and Food Hygiene News, published four times a year, provides a medium for disseminating technical information on matters related to zoonoses and food hygiene generated in the world, particularly in Nepal. The editors welcome submissions on these topics with appropriate illustrations and references. The views and opinions expressed in the News are those of the authors.

CONTENTS:

- ☞ **SURGICAL EXPERIENCE WITH PULMONARY HYDATID CYSTS WITH SPECIAL FOCUS ON PEDIATRIC AGE GROUP OPERATIVE AT BIRENDRA MILITARY HOSPITAL, NEPAL**
- ☞ **ANALYSIS OF YAKS FECES IN LANGTANG NATIONAL PARK RASUWA DISTRICT**
- ☞ **News**

Surgical Experience with Pulmonary Hydatid Cysts with Special Focus on Pediatric Age Group Operative at Birendra Military Hospital, Nepal

Brig. Gen. Prof. (Dr.) Gambhir Lal Rajbhandari,
Commandant, Birendra Military Hospital
Kathmandu, Nepal. Mobile: 9841-282857
Email: Gambhirlr@hotmail.com

ABSTRACT

Like many agriculture farming countries cystic Echinococcal Zoonotic disease is endemic in Nepal. Incidence of Pulmonary Hydatid Cysts are common among adult population in Nepal. But there are few literatures published on surgical experience with Pulmonary Hydatid Cysts in pediatric age group.

During last 15 years 1994 to 2009, 20 cases of Pulmonary Hydatid Cysts were operated at 420 bedded Birendra Military Hospital. Their age range between 7 years to 70 years. There were 14 male and 6 female. Of them 3 patients were in pediatric age group between 7 years to 14 years. There were 3 patients associated with Liver Hydatid Cysts in adult age group. All the 20 cases had pre operative oral Albendazole and post operative treatment 4 weeks each. All the patients had formal thoracotomy and Enucleation of hydatid cysts and 2 patients had laparotomy for associated Liver Hydatid Cysts. Only 1 patient with liver hydatid cyst had complete resolution following oral Albendazole treatment. All the patients had smooth post operative recovery. There was no perioperative mortality. There was no recurrence during last 15 years of post operative follow up. All the histopathological report was positive for Echinococcus Granulosus and all the cysts were unilocular in Nepal.

Key words: *Pulmonary Hydatid Cysts, Echinococcus Granulosus, Survey in Pediatric Pulmonary Hydatid Cysts.*

Introduction

Like in many agriculture farming countries cystic Echinococcal Zoonotic disease (hydatid cysts) is endemic in Nepal also. (1,2). Incidence of liver and pulmonary hydatid cysts are common in adult population in Nepal, but there are few literature published on surgical experience with pulmonary hydatid cysts in pediatric age group in Nepal. (3)

Materials and Methods:

During last 15 years since 1994 to 2009 there were 20 cases of pulmonary hydatid cysts operated at Cardio-Thoracic Surgery Unit of Birendra Military Hospital. Birendra Military Hospital is a 420 bedded multi specialty military hospital in Kathmandu, Nepal with facilities of Cardio-Thoracic Surgery, Neuro Surgery, medical specialties with modern investigation facilities of CT Scan and MRI, Birendra Military Hospital is providing medical service to 100,000 regular army personnel and about 500,000 retired army personnel and their family members. Out of 20 patients there were 14 male and 6 female patients. Their age range from 7 years to 70 years. There were 17 patients in adult age group between 18 to 70 years. There were three pediatric patients age group between 7 to 14 years. Out of 20 cases 3 patients had associated hydatid cysts of liver. Out of 3 pediatric pulmonary hydatid cysts 2 were male and 1 was female.

It was a retrospective study. All the patients referred to Cardio-Thoracic Surgical Unit with round pulmonary radiological opacity in the Chest X-ray suspected of Pulmonary Hydatid Cysts who under went surgery from January 1994 to December 2009 included in this study. All the patients were screened for Elisa Haem-Agglutination test for Echinococcus. All the patients had MRI/CT Scan of Thorax to assess size and cite of hydatid cysts in lungs before surgery. To avoid rupture of the Hydatid cysts and to prevent Anaphylaxis reaction when pulmonary hydatid cyst was suspected, FNAC (Fine Needle Aspiration Cytology) Test was not done. When the patients were suspected of Pulmonary Hydatid Cyst all the patients were given oral Albendazole 400 mg twice daily for 4 weeks before operation 4 weeks after surgery to prevent recurrence of Hydatid Cyst (4,5).

Operative Method (6,7). Routine thoracotomy was done with double lumen endotracheal tube and under general anesthesia. After opening of pleural cavity when the lung was exposed and once hydatid cyst was localized, the lung was deflated. The operative area was protected by swabs soaked with 10% betadine lotion. Pericyst of Hydatid Cyst was incised to expose Hydatid Cyst. Once the Hydatid Cyst was exposed it was enucleated by slowly increasing the intra bronchial pressure and by blunt dissection. Once hydatid cyst was enucleated the cavity in the lung tissue was cleaned with 10% betadine lotion. The bronchial openings in the pulmonary cavity was closed with praline suture. The remaining pulmonary cavity was obliterated with multiple layers of vicryl sutures. After final closer of pulmonary tissue Hemostasis and Aerostaasis was secured. Pleural cavity was washed with 10% betadine lotion mixed with normal saline. Theracotomy was closed in multiple layers with one Chest tube drainage.

Post Operative Period: During post operative period patients were kept in surgical intensive post operative ward for 48 hours. During post operative period all the patients were given antibiotic injection Taxim 1 gm IV TDS for adult and 500 mgm IV TDS for pediatric

patients and injection Gentamycin 80 mgm IV TDS for adult patients and 60 mg IV TDS for pediatric patients. Oral Albendazole 400 mgm BD was started once the patient started oral intake for 4 weeks.

Results

Intra Operative finding: Of the 20 patients operated for pulmonary hydatid cysts, 14 patients had right sided Pulmonary Hydatid Cysts; 6 patients had left sided pulmonary Cysts, 1 patient had 2 cysts in right lung. All patients had Unilocular pulmonary hydatid Cysts (7,8), 7 of them had infection inside pulmonary hydatid Cysts. 3 patients had associated liver hydatid cysts. All the pulmonary Hydatid Cysts were larger than 3 cm size (9), Histo Pathology examination of all the post operative specimens confirmed Echinococcus granulosus. All the 20 patients had formal Thoracotomy. Of 3 patients with associated liver hydatid cysts 2 patients underwent laparotomy and 1 patient with liver hydatid cyst had complete resolution of liver hydatid cyst following 6 weeks of post operative oral Albendazole treatment. All the 20 patients had smooth post operative recovery. All the patients were discharged from the hospital after 2 weeks post operative time. There was no post operative infection, there was no perioperative mortality. There was no recurrence of pulmonary Hydatid Cysts following surgery during last 15 years. There were 3 patients of Pulmonary Hydatid Cysts in Pediatric age group between 7 years to 14 years operated in 2007 to 2009. Of them 2 were boys and 1 was girl. Of the 2 boys 1 was 7 years and another boy was 14 years and the girl was 8 years old, both the boys had right sided pulmonary hydatid cyst on of them had 2 hydatid cysts in right lung one in upper lobe and one in lower lobe of lung. The 8 years old girl had pulmonary hydatid cyst on left side of lung. All the patients had large pulmonary hydatid cysts more than 8 cm in size. All of them had unilocular pulmonary hydatid cysts.

Discussion

Cystic hydatid cysts of lung and liver are common in adult age group in Nepal. Recently there was increase in number of pulmonary hydatid cyst in younger age group in Nepal. There were not many publications presented with pulmonary hydatid cysts and operation in pediatric age group in Nepal. Most of the pulmonary hydatid cysts in Nepal presented with unilocular cysts and most of them were larger in size more than 3 cm (7,8). All 3 pediatric pulmonary hydatid cysts fall in WHO group 1 larger than 2 cm and active (9). All the patients had smooth post operative recovery, there was no report of recurrence in 15 years of follow up (10), VATS (minimal invasive) surgery was not used due to large size of pulmonary hydatid cysts and to avoid rupture and recurrence of hydatid cysts (11).

Conclusion

Pulmonary hydatid cysts is still common in Nepal, now we see more pulmonary hydatid cysts in younger age group. Prognosis of surgery in pulmonary hydatid cysts was good in adult and pediatric age group. In our study in Nepal most of the Pulmonary hydatid cysts were unilocular. Oral Albendazole treatment preoperative and post operative was effective to prevent pulmonary hydatid cysts recurrence.

Acknowledgement

I would like to thank my wife Ms. Sandhya Rajbhandary for her computer compilation of this manuscript and medical team of Birendra Military Hospital for their kind co-operation to accomplish this surgical work.

Reference:

1. Schantz PM: Epidemiology of cystic Echinococcosis Global Distribution and pattern of Transmission, Proceeding of National Seminar on Echinococcosis Kathmandu, Nepal 1996.
2. Joshi AB, Joshi DD, Schantz PM et al: Epidemiological Assessment of Echinococcosis in Nepal, Proceedings of National Seminar on Echinococcosis, Kathmandu, Nepal 1996.
3. Robert W., Tohn: Echinococcosis E-Medicine January 22, 209.
4. Harton: Chemotherapy of Echinococcus infection in Man with Albendazole, Pharmacopia Martin Date. 1993.
5. Rajbhandary GL: Hydatid Cysts of Liver Complete Resolution following Albendazole J. NEP. Med. Assc. 1995, 33, Page 131-132.
6. Gizzberg. E: Pulmonary Hydatid Cysts. Robs and Smith's Operative surgery, Thoracic Surgery, Jackson JW, Cooper DKC, Butterworth, London 1986, 194-203.
7. Rajbhandary GL: Surgical Experience with Hydatid Cysts of Lung and Liver. J. society of Surgeons of Nepal 1998 Vol. I, 13-15.
8. Ayten A, Ytn Kayi Cangir, Surgical Treatment of Pulmonary Hydatid Cysts in Children. Journal of Ped. Surgery 2001, Vol. 36 Issue 6 917-920.
9. WHO Informal Working Group on Echinococcosis 2003. 3 Groupings of Echinococcus Cysts.
10. Keramidas DC, Passalides AG, Soutis M: Hydatidosis Management in Children, Depend on Anatomical Location for Treatment. International Association of Hydatology. Newsletter of Hydatidosis 1997 Issue 15.
11. WUM, Jahg, LW 2 Hutt, Qian Z-X: Surgical Treatment of Thoracic Hydatidosis Review of 1230 cases. Chinese Medical Journal 2005, 118-1665.

ANALYSIS OF YAKS FECES IN LANGTANG NATIONAL PARK RASUWA DISTRICT

July 13, 2009 - July 19, 2009

Claire Guinat -Ecole Nationale Veterinaire Toulouse- France
And Dr. Durga Datt Joshi. NZFHRC, Nepal

Background Information

Rasuwa district, with an area of 1512 sq. Kms., lies in the central development region in the kingdom of Nepal. Altitude ranges from 600 m to 7246 meters. The topography of the district is varied and ranges from dangerous cliffs, alpine mountains to valleys and vast swathe of river basins. Climate ranges from tropical, subtropical to temperate due to its topographical non-uniformity.

Yaks, Naks and Chauries comprise most of the livestock and are kept for milk, wool, leather and draft purpose. We actually consider that without Yak and Yak hybrids it's doubtful if people would live in much of northern Nepal. In total, according to D.D.Joshi (2001), there are around 20,000 Yak and about 40,000 Yak-cattle hybrids in the 18 alpine district of Nepal.

From specific studies and surveys it appears that the incidences of some diseases may be high and this is attributed to lack of economic incentive for prevention and treatment in many cases. This study trip basically concentrated on Yak endoparasites. They were found in big herds grazing in rangelands around Kyansing Gompa. Difficult terrain, climate and remoteness of the yak raising areas make it difficult to access and carry out widespread research.

Study design comprised of interview with the herd owners, anamnesis, and fecal analysis. The study site was Kyanjing Gompa.

Objective:

- To conduct epidemiological surveillance by questionnaire
- To test faecal sample collection for parasitic infestation in yak animals
- To develop guidelines for future effective yak husbandry practices in Langtang valley of Rasuwa district.

Methodology:

Farmers of Kyansing Gompa were interviewed:

1). How many Yaks, Naks or Chauris do you have in your herd?
On average all of them have around ten animals (with only one male)

2). Which pastures do you reach during the year with your herd? And when during the year?

Rainy season : Yala Peak

Winter : Langtang, Yala Kharka, Shyafubensi

3). Do you have shelter for your herd during winter? What is its size?
Yes up to 15 on average

4). How do you feed your animals during the year?

Winter : dry grass, raddish, flour, buckwheat flour, maize, rice, oil, spinach, honey

Summer: grazing field, salt

5). Why do you have a herd: milk, meat, fur, leather ?
milk, manure

6). Which diseases or symptoms (flu, lameness, diarrhea, loss of appetite, weight loss, pregnancy problems...) do you have frequently in your breeding?

Diarrhea > pregnancy problems > skin problems > lameness > uterine prolapsus/emaciation

7). Do you have a veterinary for your herd?
No

8). Do you treat diseases by yourself?
33 % use red hot metal in wounded part, Kudki for diarrhea and fever, gall bladder of Ghoral to treat summer stress

9). Do you have alternative medicine?
No

10). Do you participate in pastures development program or an other kind of improvement program concerning farmers?
No

11). Do you have an other job?
Agricultural farming

DIAGNOSTIC PARASITOLOGY

Diagnostic technique: Fecal sedimentation technique

1. Mix 2,5 g feces in 100 ml water in a beaker
2. Pour the mixture through a tea strainer and discard the materiel in the strainer.
3. After 15 min, decant approximately 70% of the supernatant and refill the beaker with fresh water.
4. Repeat step 3 for two to three times until the supernatant is clear.
5. Pour off 90 % of the supernatant and pour the sediment into a Petri dish.

6. Examine the sediment under a dissecting microscope

Results:

Study on 167 feces samples from Yaks and Chauries in Kyansing Gompa (*Himalayan Langtang Valley*)

- 103 feces samples with *Eimeria spp.* eggs (61.68%)

Common name : Coccidia (*Apicomplexa*)

Size of oocysts : 16-47 x 13-32 in small intestine; several species.

Importance : some pathogenic species cause clinical coccidiosis. Young animals: bloody diarrhea, death. Adults: decrease production, diarrhea.

Diagnosis : oocysts in fecal sedimentation. Hyperemic, hemorrhagic intestines, whitish raised lesions in intestines found at necropsy.

Treatment : Amprolium, 10 mg/kg PO q 24h x 5-21 d

Sulfamethazine, 0.5% in feed, or 130 mg/kg PO, then 65 mg/kg q 12 h x 4 d

- 55 feces samples with *Trichostrongylus axei* eggs (32,93%)

Common name: Bankrupt worm or small stomach worm (*Trichostrongyloidea*)

Adult size: 4-8mm in abomasum

Size of egg: 80 µm x 40 µm

Importance: in cattle, sheep, goats there is diarrhea, dehydration, bottle jaw, and emaciation in stressed animals

Diagnosis: eggs in fecal flotation and sedimentation. At necropsy, adults in abomasum

Treatment: Albendazole, 10 mg/kg PO

Doramectin, 0.2 mg/kg IM or SC

Eprinomectin, 0.5 mg/kg pour on

Fenbendazole, Spring, 5 mg/kg PO

Ivermectin, Fall, 0.2 mg/kg SC

Morantel tartrate, 9.7 mg/kg PO

Moxidectin, 0.5 mg/kg pour on

- 37 feces samples with *Ostertagia ostertagi* eggs (22,16%)

Common name: brown stomach worm (*Trichostrongyloidea*)

Adult size: 6-10mm in abomasum

Size of egg: 80 µm x 45 µm

Importance: larvae destroy gastric glands of cattle; may cause severe diarrhea and weight loss

Type I: Larvae mature and adult produce eggs.

Pre-type II: not clinically apparent.

Fourth stage larvae are inhibited in gastric glands.

Type II: Maturation of inhibited larvae with weight loss, diarrhea, anorexia, anemia, no fever, often no eggs in feces

Diagnosis: fecal flotation and sedimentation. At necropsy, adults and nodular lesions are found in abomasum

Treatment: Albendazole, 10 mg/kg PO kills type II

Doramectin, 0.2 mg/kg IM or SC

Eprinomectin, 0.5 mg/kg pour on

Fenbendazole, 5 mg/kg PO kills type II at 10 mg/kg

Ivermectin, 0.2 mg/kg SC kills type II

Morantel tartrate, 9.7 mg/kg PO

Moxidectin, 0.5 mg/kg pour on kills type II

- 12 feces samples with *Trichuris ovis* eggs (7,19%)

Common name: Whipworm (*Trichuroidea*)

Adult size: 2-3 mm in cecum and large intestine

Size of eggs: 75 µm x 35 µm

Importance : rarely pathogenic ; overwhelming infections may cause fatal hemorrhage into cecum.

Diagnosis : eggs in fecal flotation and sedimentation.

At necropsy, adults are found in cecum and large intestines.

Treatment : Doramectin, 0.2mg/kg IM or SC

Eprinomectin, 0.5 mg/kg pour on

Fenbendazole, 5 mg/kg PO

Ivermectin, 0.2 mg/kg SC

Discussion

Secondary source of Information were collected and found an other similar study on the same place by Bimal Kumar Chhetri, Interne for B.V.Sc. & A.H., IAAS, Rampur (*Overall Livestock Management and Analysis of Brucellosis and Endoparasites in Langtang National Park, Rasuwa District*)

He visited different sites: Langtang National Park- Dhunche, Chandanbari, Gumba Kharka, Kyanjing Gompa, Jangbu Kharka
Date of Visit: 26th Bhadra 2058 to 7th Asoj 2058 (~ September 10, 2001 to September 22, 2001)

Fecal analysis was performed using the Mc Master quantitative flotation method and sedimentation technique. These figures are interesting in understanding Yak endoparasites but we can't compare both the studies because of the gap between the number of cases analysed in each part.

Fecal analysis of 7 Chauries in Chandanbari :

-Trichostrongyles 14.3%

-Eimeria 71.4%

-Fasciola hepatica 42.9%

-Toxocara vitulorum ND

-Strongyloides 85.7 average epg 95.8

Fecal analysis of 19 Chauries in Jangbu

-Trichostrongyles 26.3% average epg 40

-Strongyloides 26.3% average epg 40

Fecal analysis of 2 Naks in Jangbu

-Trichostrongylis: 100% average epg 37.5

-Toxocara vitulorum: 50% average epg 100

Conclusion

Inherent remoteness and inaccessibility of the Yak-rearing areas makes the delivery of conventional health services difficult. Because of this, herdsman have acquired special local knowledge to deal with various livestock diseases by themselves. Farmers at Kyansing Gompa have little access to veterinary care. None of the animal is vaccinated or dewormed and are heavily infested with ticks in summer. Veterinary care is not available in the high altitudes, every herdsman is dependent on household therapy or the traditional healers for veterinary care. First of all, some major diseases could be reduced through strategic anthelmintic therapy and other treatment. Then, we have to gather farmers regularly to well inform them about several factors of the Yak diseases and to promote prophylactic and prevention measures. Finally, many of the disease problems observed in Yak may be caused or magnified by stress from the feed deficit in winter and early spring and from weather conditions, including the periodic disasters caused by these conditions. We have to focus on this aspect of the beginning of the outbreak of the parasites.

NEWS

“Proposal Development Workshop on Environmental Change, Transforming Livelihoods, and Disease Emergence in South Asia (India, Nepal, Sri Lanka)”

During Ecohealth 2010 conference in London from August 18 to 20, 2010. This is the third biennial conference of the International Association for Ecology and Health (IAEH). It took place at and is hosted by the London School of Hygiene and Tropical Medicine and is generously supported by the International Development Research Centre (IDRC) Ottawa, Canada. During that time the concept of ecosystem approach to be applied in infectious/communicable disease control particularly zoonotic diseases was thought by the joint meeting of IDRC consultant and delegates from India, Sri Lanka, Nepal and Bangladesh. It was decided to have a “**Proposal Development Workshop on Environmental Change, Transforming Livelihoods, and Disease Emergence in South Asia (India, Nepal, Sri Lanka)**”. The topic for this workshop is selected Japanese Encephalitis. Each country of South Asia Region India, Nepal and Sri Lanka were asked to prepared a concept proposal note to present in this workshop. The “Assessment of Vector Borne Communicable Infectious Japanese Encephalitis (JE) Disease Outbreaks Status in South Asia Particularly in Nepal, India and Sri Lanka” 2011 to 2012. The date will be **29 Nov to 2 Dec 2010, Manaslu, Kathmandu Nepal. It will be supported International Development Research Center (IDRC), Ottawa, Canada and it will be organized by: National Zoonoses and Food Hygiene Research Center (NZFHRC), Kathmandu Nepal.**

World Rabies Day September 28, 2010 will be celebrated in NZFHRC

World Rabies Day will be celebrated with the following activities:

1. Free dog rabies vaccination programme will be carried out from 10 AM to 2 PM at NZFHRC Office premises.
2. Mass public health awareness with talk programme about the important of rabies vaccination in dogs will be provided to all dog owners and lovers.
3. Free distribution of pamphlet, booklets, posters to all the visitors at the vaccination post.
4. At the end of the vaccination programme a report will be prepared and send to Dr. Peter Costa and alliance group rabies control for Nepal

K.D.M.A. Research Award:

Please kindly submit your research work paper on allergy for trust award consideration by the end of December 2010 to KDMART office Chagal, G.P.O. Box 1885, Kathmandu, Nepal, Phone: 4270667, 4274928 and Fax 4272694. This award was established by Dr. D.D. Joshi in 2049 B.S. on the memory of his wife, the late Mrs. Kaushilya Devi Joshi. The award includes a grant of NCRs. 10,001 with certificate.

**From: Zoonoses & Food Hygiene News, NZFHRC
P.O. Box 1885, Chagal, Kathmandu, Nepal.**

TO:

Dr/Mr/Ms

.....

.....