Histomoniasis in Turkey: A case report

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Introduction

Histomoniasis primarily affects turkey caused by protozoa Histomonas meleagridis. It is a cosmopolitan parasite and also affects other bird species such as chicken, peafowl, pheasant and game birds.

The disease is commonly known by blackhead or infectious enteric hepatitis. The disease causes high morbidity, mortality and economic loss in intensively managed turkey farm. While turkey, chicken, peafowl and pheasant are the definitive hosts of Histomonas meleagridis, caecal nematode Heterakis gallinarum and earthworm serve as intermediate and paratenic hosts, respectively.

Therefore, the control of Histomoniasis in turkey property should aim at disrupting its life cycle in each host. Infected bird shows depression, inappetance, poor growth, sulphur-yellow diarrhoea and cyanosis of head. The lesions found are confined to caeca and liver. The protozoa burrow into the lining of the caeca causing it to become thickened and bloody.

The content of the caeca is mixed with the blood and frequently form a cheesy plug in one or both caeca. Protozoa is carried from caeca in the blood to liver where they cause dark red, grayish or yellowish spots.

Case: An adult turkey carcass was presented to the Laboratory Service Unit of the National Centre for Animal Health (NCAH), Serbithang for detail postmortem examination and laboratory investigation. Accordingly, a detail postmortem examination was carried to identify the cause of death.

History: It was reported that the bird did not show any signs of stress or disease condition and reported to have died suddenly.

Postmortem findings: The carcass appeared healthy except for the light cyanosis of head and neck (Fig 1A). On postmortem examination there were large numbers
of crater like circular necrotic lesions on the surface of liver (Fig 1B-C). Both the caeca were impacted with solidified content. When caeca were opened two pieces of solidified mass of caseous exudates were found (Fig 1D).

**Laboratory findings:** Large numbers of eggs of *Heterakis gallinarum* were found from the faecal examination in addition to the *Capillaria* species.

**Figure 1:** Images of affected bird and organs. An adult turkey carcass presented for postmortem (A); necrotic foci in fresh liver (B); close view of lesion (C); solidified caseous plug collected from caeca (D).

The haematoxylin and eosin (H and E) stained liver tissue revealed large number of *Histomonas* trophozoites. There were haemorrhages in sinusoids, fatty degeneration of hepatocytes, necrotic areas and active infiltration of lymphocytes and neutrophils.

**Bacterial culture:** Culture did not reveal involvement of any significantly pathogenic bacteria.

**Diagnosis:** The case was diagnosed as Histomoniasis based on the postmortem findings, histopathological changes and parasitological analysis.

**Treatment:** Regular use of nitroimidazoles and phenylarsonic acid derivatives may reduce the incidence of Histomoniasis. Control of caecal worm may be done through the use of nematocides such as mebendazole, cambendazole and levamisole.

**Control:** The control of this disease requires the detail knowledge of life cycle of *Histomonas meleagridis* in different hosts *Heterakis gallinarum* and earthworm (Fig 2). The parasite is ingested in the ova of *Heterakis* worm or as larvae in earthworm or faeces. The incubation period is usually 15-20 days. Without earthworm or *Heterakis gallinarum* the parasite is easily destroyed.

Regular deworming of birds and restricting them from accessing earthworm - the paratenic host of *Heterakis gallinarum* may reduce the outbreak. Therefore, a three pronged control measures aimed against *Histomonas meleagridis* with antiprotozoal, *Heterakis gallinarum* with nematocide and control of earthworm will effectively reduce the incidence of Histomoniasis in turkey. Since rearing chicken and turkey on same property is likely to increase the risk of this disease, management of single species will be safer.

**Conclusion**

Turkey farming is a new entity in our poultry industry and so is our knowledge on management. Therefore, the concerned stakeholders are required to update the knowledge of this disease for timely intervention in reducing future incidences. The management needs to promptly act should they observe any signs that are consistent with Histomoniasis.
Bhutan so far has no locally processed pork product in the market except for the traditional sikam. In order to break this gap and make locally produce sausage available around, training on sausage making was conducted at the National Piggery Development Centre (NPiDC), Gelephu.

The training first of its kind held from 23-25 April was attended by 15 members of Sarpang Yarkey Piggery Group (SYPG).

The SYPG was formed on April 12, 2015 to facilitate the marketing of local pork and its products from Sarpang. The members consist of young educated enthusiasts interested to take up piggery as self-employment. They have well build permanent piggery shed supported through NPiDC.

The members started pig farming since 2013 with 10-100 pigs per farm. As there are marketable fatteners at various farms, the group had approached Dzongkhag Administration who allocated sale out-let at Sarpang Vegetable Market to sell farm products while the Livestock Department supplied them equipment.

The training on first day covered theory classes on meat hygiene, control of pathogen, importance of temperature regulation in sausage making, de-boning, separation of skin from meat, different type of sausages, purpose of sausage smoking and proper equipment handling.

The practical session covered the de-boning practice of chilled carcass followed by de-skinning process, segregation of lean meat and fats. After the participants had cut lean meat and fats into required size of pieces, they were exposed on spices preparation for different sausage flavour.

The trainees also learnt electrical meat grinder, spices mixing and storing back the ingredients into the deep fridge. All records of weight measurement were kept to derive the sausage production cost for per kg and fix its selling price later.

During the training funded by NPiDC., three types of sausages were made namely: German sausage with prominent black piper taste, Onion/Garlic taste sausage and local sausage with xanthoxilam (thenye) taste. Sausages were filled with sausage stuffer manually and cooked for 20 minutes at water temperature of 70-80°.

The cooked sausages were cured for 2-3 hours in a locally made smoking chamber for flavour and for preservatives. In total, 52 kgs of sausages were produced from 75 kgs pig carcass. Besides, the demonstration on chicken roasting was conducted for the participants. They learnt that the best chicken roast would need four hours roasting before serving.

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In order to promote the new product to the consumers, the sausage tasting event was organised. It was attended by around 60 people including Dasho Drangpon, Dasho Dzongrab, Dasho O.C- RBP, Dzongkhag sector heads, teachers and business representatives.

Dasho Drangpon appreciating the sausage tastes shared, ‘German one has right taste for high-end hotels while local one can go well with a Bhutanese people.

The local pork and sausages will be available from May 4 at Nu. 170/kg and Nu. 550/kg respectively at the SYPG counter. It will be available on every weekend and based on prior demand. The counter will also sell local fish at a competitive price. The group is planning to open a sale outlet at Gelephu Thomde. Mr. Anand Rai, the Group Chairman is confident to find the sausage demand within Dzongkhag initially and then they will try to explore a larger market.

NPiDC is exploring the best packaging materials for sausages to help towards achieving the pork self-sufficiency in Bhutan.
Glimpses of Royal Bhutan Flower Exhibition held from 1-6 April 2015 at Ugyen Pelri Palace, Paro
Leisure

Announcement

Stocks of Veterinary Medicines and Equipment in Phuentsholing Store

The Drugs, Vaccine & Equipment Unit under the National Centre for Animal Health, Serbithang will be undertaking second lot of mass distribution of veterinary medicines and equipment starting from May 4, 2015. As such, we would like to share the physical stock balance of veterinary medicines and equipment in Livestock Central Store, Phuentsholing as of 31st March 2015 and the schedule of distribution.

All the Dzongkhags, Farms and Central Agencies under the Department of Livestock are therefore requested to go through the stock balance and prepare a list of your additional requirements and bring it with you during the packing and distribution time or submit to DVEU/LCS.

The list will be exclusive of your normal indents which we will be distributing as per your remaining supply balance and budgetary ceiling.

For details, please visit Ministry’s website

NCAH, Serbithang

Sudoku Puzzle

Fill in the grid with digits in such a manner that every row, every column and every 3x3 box accommodates the digits 1-9, without repeating any.

Answer in the next issue

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Last week's solution

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Traders registration for Cordycep Auctioning 2015

All the traders interested to participate in Cordycep Auctioning 2015 are requested to kindly register with Department of Agricultural Marketing and Cooperatives before 5 PM (BST), 29 May 2015 (Form can be downloaded from the Ministry’s website)

– DAMC

Submit articles for RNR-Newsletter, May 2015 to tyangzom@moaf.gov.bt OR ics@moaf.gov.bt
Subsidy provided in Pemathang for a better livelihood

Kinley Phurpa, Livestock Extension Supervisor, Pemathang

The production of clean and fresh chicken meat has begun in Pemathang geog, Samdrup Jongkhar through the concerted efforts of the Dzongkhag Livestock Sector and geog administration.

To facilitate the meat production, Mr. Ganesh Bishwa, 38 years old has volunteered to take up broiler farming. He is back in his roots after 16 years of his driving career. With his hard earned savings, he managed to own 0.20 acres of land at Chirthshosa.

Mr. Bishwa is popularly known as a ‘Good hearted human being’ for donating one of his kidneys to a cousin without charging a single penny. In the small land he owns, exacerbated by his fragile health condition, he finds it challenging to lay food on the table for his family of six. For him, sustaining a life was difficult as he needs to avoid doing heavy work. He realised that the only way to maximise production and improve his livelihood is through innovative work that demands less strength such as broiler, piggery and poultry production.

To meet the local demand of chicken in the locality and to help improve the living standard of Mr. Bishwa in a small livestock way, a project was initiated. With such project, the Sector focused the services to the poorest of the poor such as landless, unemployed youth and poorest households living around.

To kick start, the beneficiary was provided 30 numbers of corrugated galvanised iron sheets, 45 metres of wire mesh, 500 numbers of day old chicks and broiler feeds of Nu. 80,000 through MAGIP. As required by the MAGIP project, Mr. Bishwa contributed local materials like stones, woods and labour amounting to Nu. 35,000 on his own.

The broiler shed is well established following the standard norms required to rear broiler birds. The Sector rendered basic technical knowledge on management practices and dressing after harvesting the product like scalding, de-feathering and evisceration to achieve a quality product. The durability of the farm for years to come is assured by the owner’s robust interest and also by huge potential market around. Mr. Bishwa has earned a net profit of about Nu. 75,000/- in just seven weeks through meat sale. He rears both wine and poultry and has constructed a small meat counter to ensure continued supply of both meat.

Mr. Bishwa shares, ‘I have discovered a livestock channel to attain prosperous life and generate income to raise my family.’ As said, Mr. Bishwa is reaping the fruit of his dedication and hard work.

The success story of Mr. Bishwa in broiler farming has encouraged other farmers in the vicinity to take up similar farming. Towards this, the Sector has supported to establish five more farms with same subsidy support to economically deprived farmers in Pemathang. Till date, the Sector has established 11 farms with 500 broiler birds that continues to sustain itself generating income at household level.

The group has produced about 5 metric tonnes of meat and marketed to various eastern Dzongkhags earning approximately Nu.50,000/- per household. In collaboration with the Regional Agriculture Marketing Cooperative Office, Mongar, the Sector has linked the farmers with the main meat vendors of eastern Dzongkhags to form a systematic marketing system. The Sector will continue to monitor and provide the technical support to these farmers and groups for farming sustainability.
The Regional Agricultural Marketing and Cooperative Office (RAMCO) in Mongar jointly with the Food Corporation of Bhutan Limited (FCBL), six Dzongkhag Agriculture Sectors, RDC Wengkhar and geog extension office facilitated the marketing of 73.350 MT of maize from six eastern Dzongkhags to Karma Feeds, Phuentsholing. This has helped farmers to earn an income of Nu. 0.953 Million.

The maize was marketed to Karma Feed at Nu.13/kg. It was collected from 130 households in 21 geogs of five eastern Dzongkhags. To assure quality, about 5.6 MT of maize infested by pest were rejected. Before the RAMCO’s intervention, farmers had been selling their surplus maize to the local traders and local market. However, not all the surplus could be sold due to limited local market for maize.

Following interaction and positive feedback from Karma Feeds, it was arranged to market them the surplus maize. Karma Feeds had previously tried to procure maize from east but due to high price expectation from farmers the deal could not be materialised. The mill was importing maize from India at Rs.10-12/kg. Besides, some local traders were marketing maize from Trashigang and Trashiyang-tse to Karma Feeds at agreed rate of Nu.14.7 as it was off-season. Reducing Nu.1.7/kg for transportation by FCBL, farmers were offered Nu. 13/kg.

Surplus maize marketing program is seen as beneficial program for the eastern farmers. In 2016, the surplus maize collection may go beyond 100 MT if there is timely intervention from stakeholders. Local traders are also getting involved in the program and there is possibility that in near future all surplus maize could be collected by them. RAMCO will continue to encourage local traders through different programs such as buyers-sellers meeting, transportation subsidy and other supports.

Overall, such joint initiative is a successful venture benefiting farmers and creating a win-win situation for both producers and consumers. On a positive note, the problem of marketing surplus maize is expected to be solved to a large extent with the operation of a medium scale feed mill (4 MT/hour) that has been installed at Namla, Kanglung by the Department of Livestock with fund support from MAGIP.