Fascioliasis a Parasitic Food Borne Zoonoses Infection in Meat Animals of Kathmandu

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Introduction

- **Fasciolosis** is an important helminth disease caused by two trematodes *Fasciola hepatica* (the common liver fluke) and *Fasciola gigantica*.
- This disease belongs to the plant-borne and meat – borne trematode parasitic zoonoses.
- In human the parasites cause biliary obstruction resulting high fever, diarrhea, chills, bile inflammation, liver enlargement, and jaundice.
- Pharyngeal form of fascioliasis can be seen among people who eat raw animal liver with characteristic symptoms of bleeding and pain of the pharynx (http://www.stanford.edu/class/humbio103/parasites2001/fascioliasis).

Fasciola hepatica

Source: From Wikipedia, the free encyclopedia

Introduction…..Cont.

- Studies carried out in recent years have shown human fasciolosis to be an important public health problem (Chen et al., 1990).
- Human fasciolosis has been reported from countries in Europe, America, Asia, Africa and Oceania.
- The incidence of human cases has been increasing in 51 countries of the five continents (Mas-Coma et al., 1999; Esteban et al., 1998).
- A global analysis shows that the expected correlation between animal and human fasciolosis only appears at a basic level.
- *Fasciola* is a well known parasite of herbivorous animals.

***Galba truncatula* - the most common intermediate host of *F. hepatica* in Europe, South America** and South East Asia including Nepal

Source: From Wikipedia, the free encyclopedia

Introduction…… Cont.

- It has a worldwide distribution in the animal reservoir host.
- A large variety of animals, such as sheep, goats, cattle, buffalo, horses and rabbits show infection rates that may reach 90% in some areas.
- Infection of the human host was very sporadic until the last two decades when clinical cases and outbreaks were reported.
- *Fasciola hepatica* and *F. gigantica* have similar aquatic diheteroxenous life cycles. Humans can become infected by ingesting metacercariae-containing freshwater plants especially watercress.

Geographical Distribution

- Human and animal fasciolosis occurs worldwide (Torgerson, P; et al., 1999).
- While animal fasciolosis is distributed in countries with high cattle and sheep production, human fasciolosis occurs, excepting Western Europe, in developing countries.
- Fasciolosis occurs only in areas where suitable conditions for intermediate hosts exist.

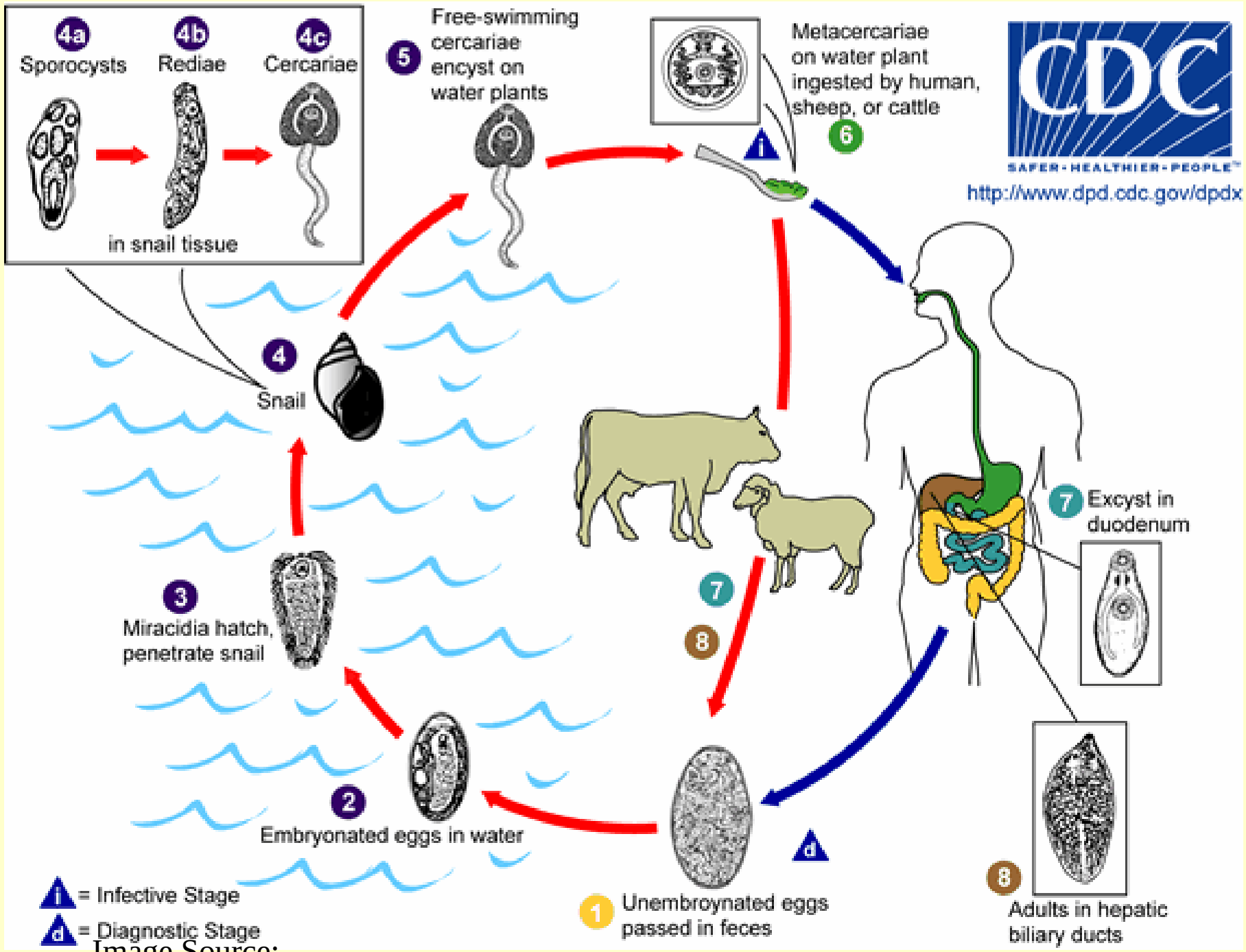


Image Source:
http://www.dpd.cdc.gov/dpdx/images/ParasiteImages/Fascioliasis/Fasciola_LifeCycle

Life cycle of *Fasciola*

Objectives

- To observe the hygienic condition in and around the slaughtering area and meat shops.
- To study the prevalence of Fascioliasis in buffaloes slaughtered for meat.
- To create awareness among butchers, meat sellers and consumers about meat hygiene.

Methodology

- Surveillance study was carried out during the period from Nov. 2007 to July 2008, slaughtered for meat were surveyed a total of 200 buffaloes in a total of 12 slaughtering places found over the entire Kirtipur municipality.
- The buffaloes were categorized as male, female, calf, adult and old, and examination was carried out.

Buffalo carcass is being burned with paddy straw traditional method.

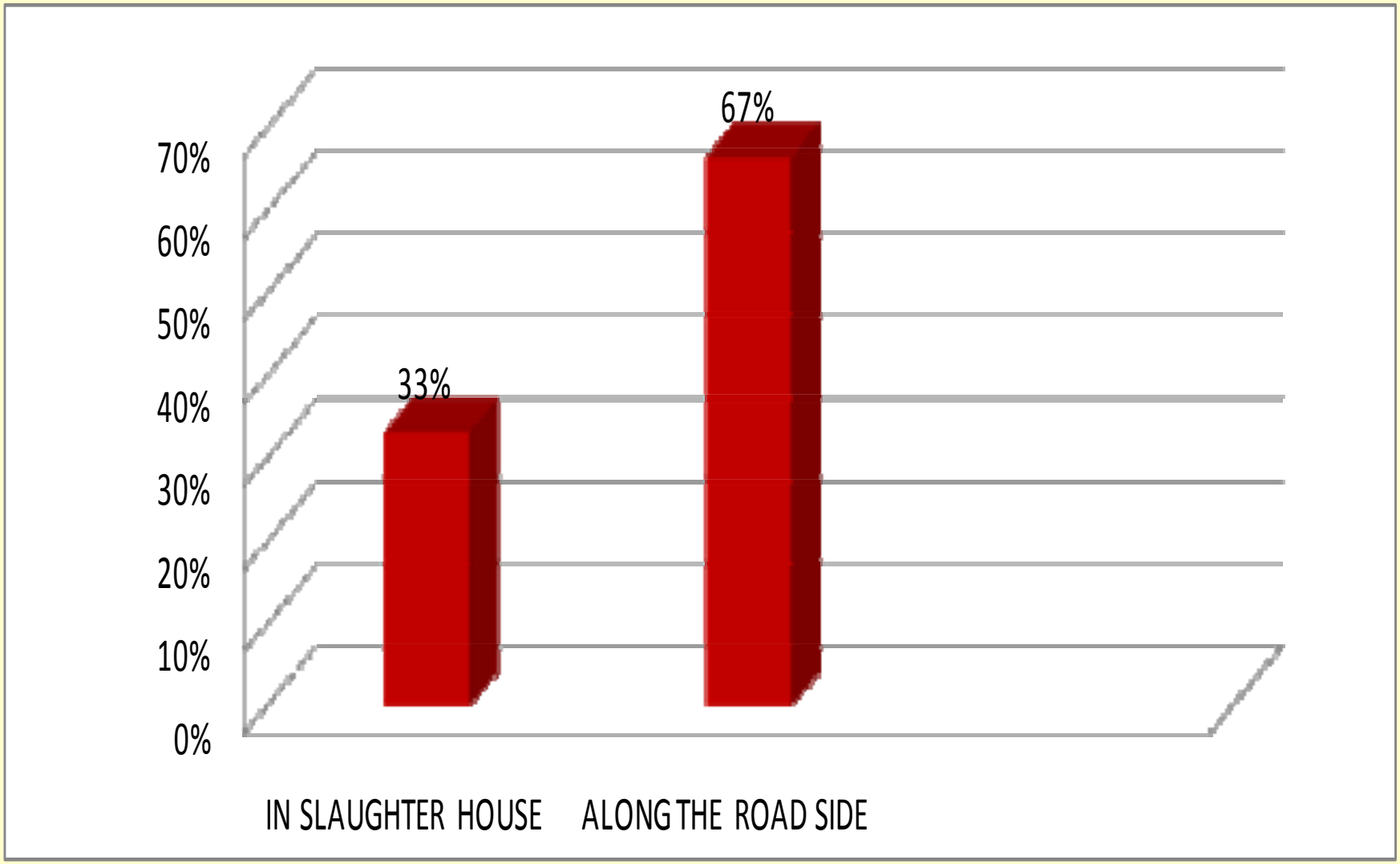
Common method of slaughtering in ground on roadside

BUTCHERS WORKING WITH THE CARCASS of Kathmandu

Results

- In most of the slaughtering places, in fact in 66.66%, buffaloes were slaughtered along the road side and they were always found visited by dogs, while in 33.33%, they were slaughtered in the slaughter house (See fig. no. 1).

Fig 1: PLACES OF BUFFALO SLAUGHTERING



Females were found more infected with fascioliasis. 38.05% of the females had fascioliasis as compared to 16.09% of males. The difference in sex-wise prevalence of fascioliasis was found significant (χ 2 0.05, 1d.f. =11.63).

Table *1*: SEX-WISE PREVALENCE OF *Fasciola*

MONTH SEX	WINTER			SUMMER			TOTAL		
	Observed	Infected	Prevalence	Observed	Infected	Prevalence	Observed	Infected	Prevalence
MALE	40	8	20.00%	47	6	12.76%	87	14	16.09%
FEMALE	60	27	45.00%	53	16	30.18%	113	43	38.05%
TOTAL	**100**	**35**	**35.00%**	**100**	**22**	**22.00%**	**200**	**57**	**28.50%**

- **Age-wise prevalence of *Fasciola***

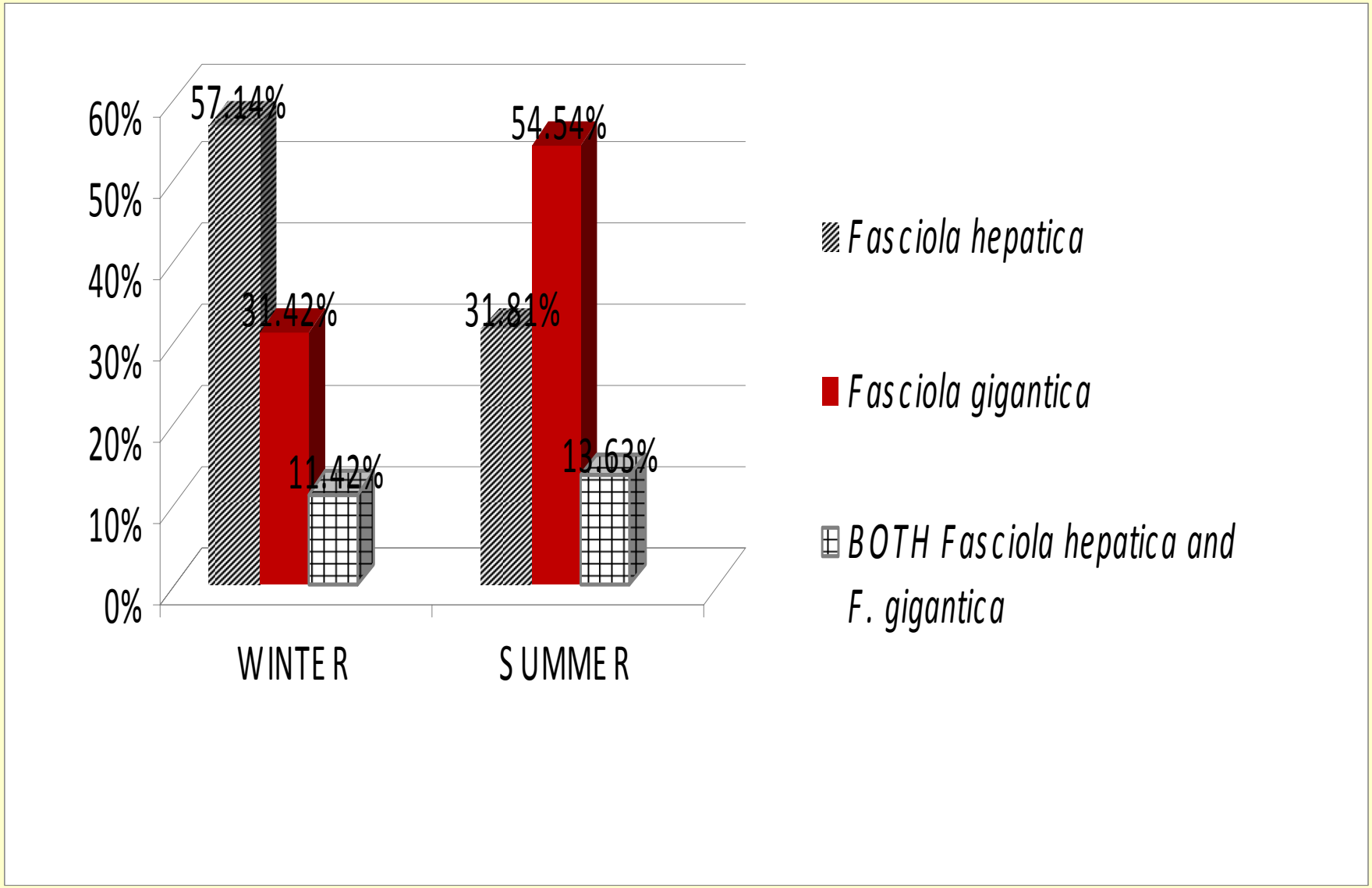
Old animals (35.78%) were infected with *Fasciola* more often than calves (14.81%) and (29.41%) adults which is shown in Table 8. Difference in age-wise prevalence of *Fasciola* was significant (χ 2 0.05, 2d.f. =7.45).

Table 2: AGE-WISE PREVALENCE OF *Fasciola*

MONTH AGE	WINTER			SUMMER			TOTAL		
	Observed	Infected	Prevalence	Observed	Infected	Prevalence	Observed	Infected	Prevalence
CALF	20	4	20.00%	34	4	11.76%	54	8	14.81%
ADULT	30	8	26.66%	21	7	33.33%	51	15	29.41%
OLD	50	23	46.00%	45	11	24.44%	95	34	35.78%
TOTAL	**100**	**35**	**35.00%**	**100**	**22**	**22.00%**	**200**	**57**	**28.50%**

Infection with *Fasciola hepatica* (59.65%) was found slightly higher than *Fasciola gigantica* (52.63%) (See fig. no. 2).

Fig. no. 2: SPECIES-WISE PREVALENCE OF *Fasciola*



LIVER INFECTED WITH *Fasciola* spp.

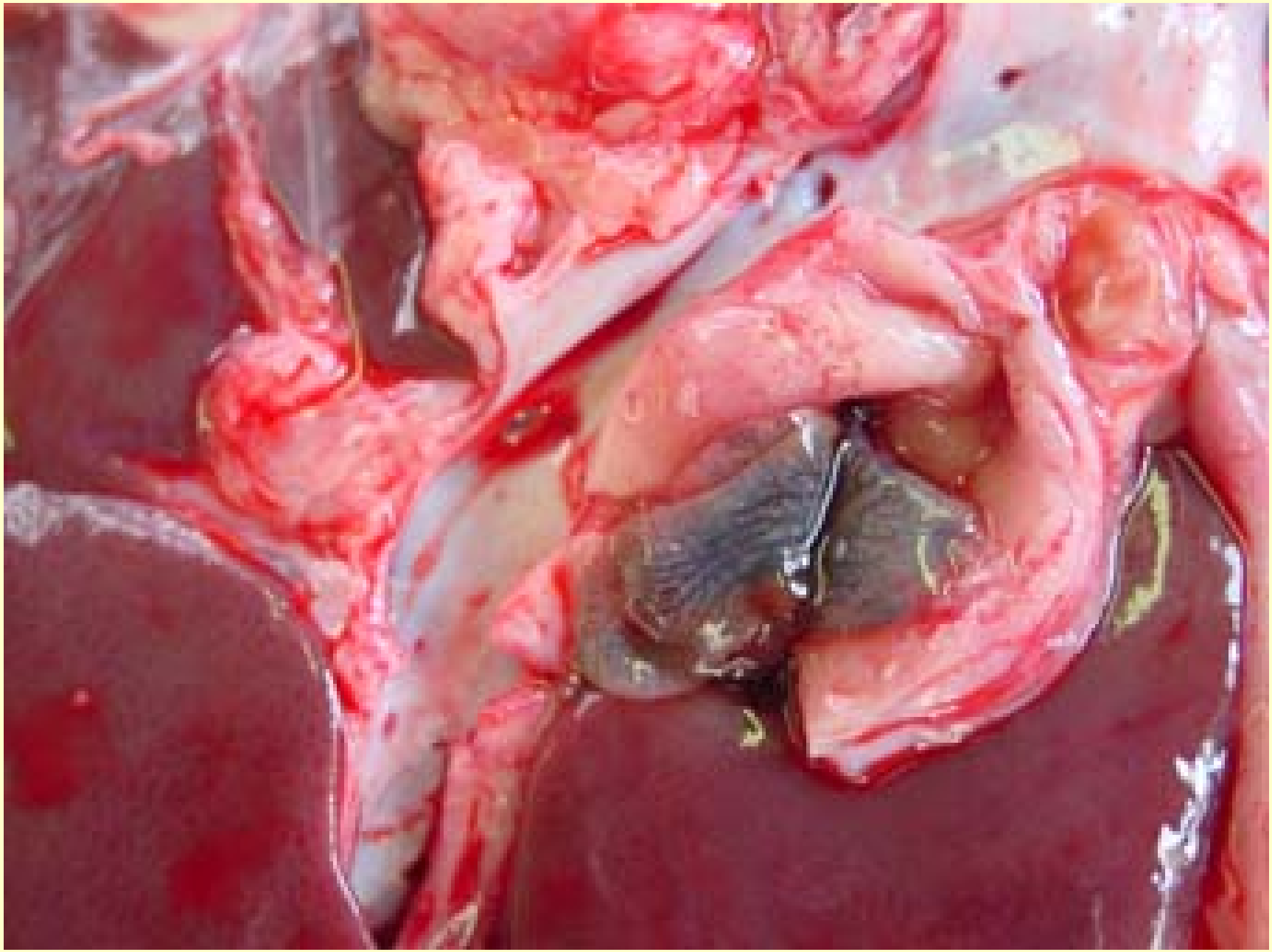
DISPOSAL OF WASTE

UPPER *Fasciola gigantica* VERSUS LOWER F. hepatica

Fasciola spp.collected from liver from Kathmandu

Hypertrophia of bile ducts in liver caused by F. hepatica (liver section; goat)

Source: From Wikipedia, the free encyclopedia



Adult flukes *Fasciola hepatica* in bile ducts (liver of goat)

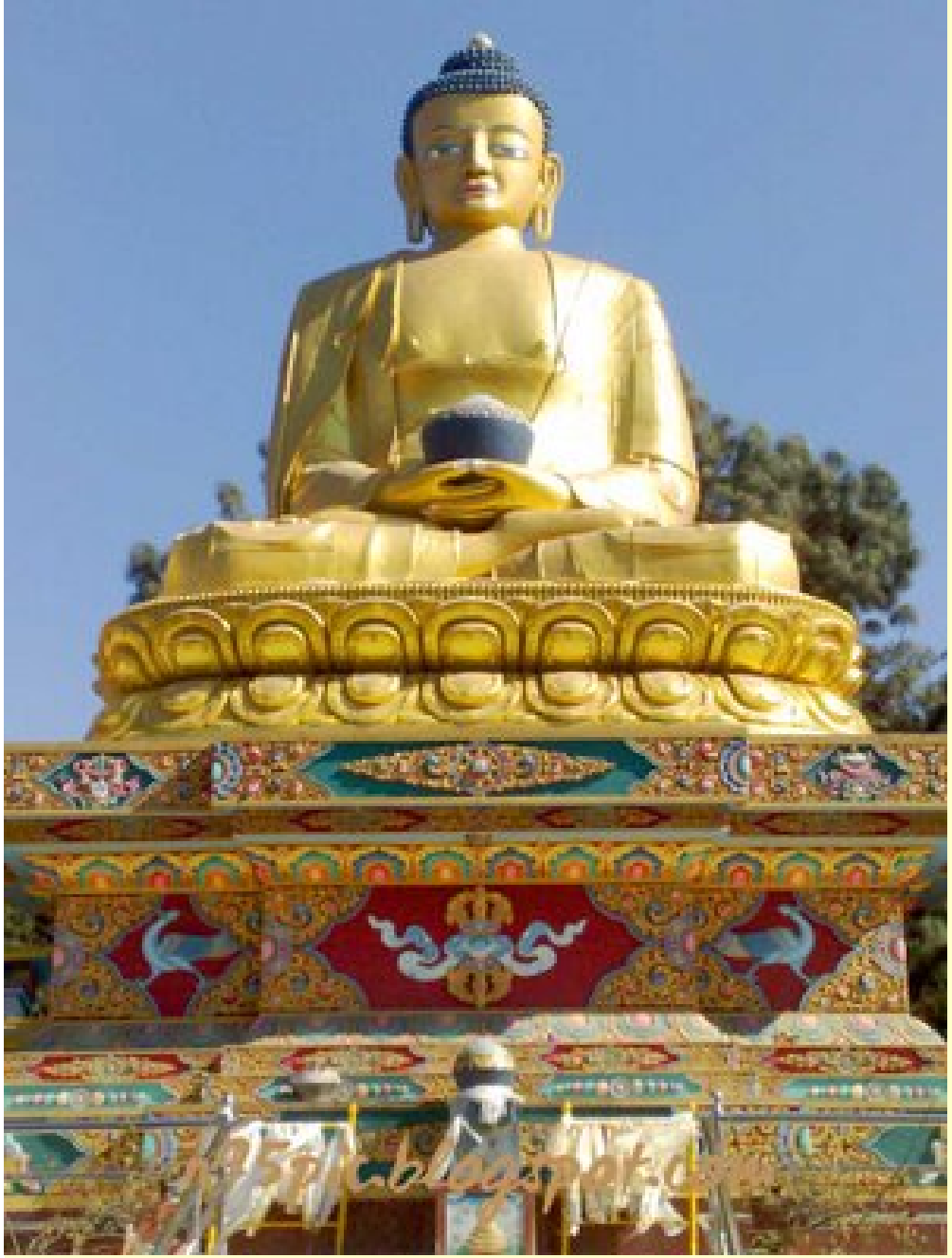
Source: From Wikipedia, the free encyclopedia

Conclusion

- Slaughter house, at least a mini abattoir should be established in each ward depending the consumption of the meat.,
- Slaughtering practices should be made humane.
- Slaughter shed should be constructed.,
- Infrastructure to facilitate the slaughter and marketing of meat should be established.
- Meat marketing system is unhygienic and lacks quality. It should be improved.,
- The butchers and meat sellers should be trained and should be made aware about meat borne diseases

Acknowledgement

- I would like to acknowledge the following institutes and persons for their help and support:
- Dr. Andres Sanchez, International Development Research Centre (IDRC), Ottawa, Canada
- DDJ Research Foundation, Chagal, Kathmandu, Nepal
- NZFHRC and its staff



Thank You
Namaste