

ACUTE FASCIOLIASIS IN ROODBAR

By :

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SUMMARY :

During an outbreak of acute *Fascioliasis* in Roodbar Region (Guilan) of Iran a flock of 900 sheep was treated by Diamphenethide and Rafoxanide and an evaluation of the efficiency of both drugs against natural acute *Fascioliasis* (immature *Fasciola gigantica*) was made. 60 sheep were died in less than two weeks of infection; however the oral administration of Diamphenethide and Rafoxanide at a dosage rate of 100 and 15 mg/kg bodyweight stopped the mortality within four days of treatment. Although both drugs were found capable of removing immature parasites without leaving any toxic effect, still Diamphenethide showed a comparingly higher efficiency.

ACUTE FASCIOLIASIS :

Metacercaria ingested by animal and the young flukes excyst and migrate to the bile ducts through the intestinal wall, peritoneal cavity, and parenchyma of liver before they become mature.

The maturity period under our experimental conditions takes ten weeks.

Iran has been divided into four zones with substantially different climate changes (Skerman 1966).

Zone 1, Caspian Sea plains and watershed where the rainfall is highest 40-150 cm, per annum and monthly temperatures ranges from 8-26°C.

Zone 2, The mountain plateaux with a rainfall of 20-50 cm per annum, low relative humidity and a temperature range of 5-29°C.

Zone 3, The Persian Gulf lowlands with a rainfall of 20-30 cm during winter and spring, relatively high humidity and a temperature of 13-36°C.

Zone 4, The central salt and Deserts with less than 10 cm annual rainfall.

The relative high humidity of zone 1 is an important factor for the spread activity of snails. The low humidity of zone 2, the mountainous parts, cause their activity to be limited to springs, irrigation ditches, rivers, canals, pools ect. Thus in zone 1 *Fascioliasis* is likely to occur in all grazing lands. But in zone 2 the occurrence of *Fascioliasis* is restricted to snail habitats.

Under Iranian geographical conditions, snails infected in April should normally shed an amount of cercaria in June. Thus acute *Fascioliasis* is to be most frequently encountered in August and September, However; based on our observations few cases of acute *Fascioliasis* will occur as long as there is sufficient herbage on the grazing lands.

Since a poor quality of herbage is found where the intermediate hosts are prevalent, the sheep would therefore not graze on such a pasture, whenever there is access to a high quality herbage. Both limited spreading activities of the snails, and a poor quality herbage in their inhabitate, lower to some extent the chance for the grazing sheep infected with *Fasciola* infection. In autumn when the pastures grow scanty and meagre, the hungry flocks begin to turn to marshy lands, river banks, where the snails are found abundantly, and naturally the type of herbage in such localities is mostly contaminated with metacercaria.

In 1975 Roodbar, the locality of this case report, had a rather warm winter and a case of acute *Fascioliasis* was encountered among a flock of 900 sheep. The infection had been caused by a population of *Fasciola gigantica* metacercaria which had lived out the winter. Normally the undigested metacercaria in mountain plateaux (zone 2) will be eliminated by sharp fall of temperature and frost.

DIAGNOSIS:

The first carcass delivered by the owner to the Razi Institute had post mortem putrifaction. Another carcass of the same flock was given post mortem examination which showed clear symptoms of acute *Fascioliasis* (acute lesions are worm tunnels and heamorrhage caused by migration of immature *Fasciola* in liver), 120 immature *Fasciola gigantica* were found from portions of its liver. The counting method chosen is fully described by Hakaru and Morles in 1973.

Efficiency of Diamphenethide and Rafoxanide on mature
immature *Fasciola gigantica*

TABLE 1.

Subgroup	Drug	Presence of eggs in fecal samples		
		Positive cases		
		before treatment	One week after treatment	12 Week after treatment
40 Sheep 1	Diamphenethide	10	2	3
40 Sheep 2	Rafoxanide	15	0	5

FIELD TRAILS:

The flock was first removed from the infected area and was divided into two groups of 500 and 400 sheep. Forty sheep from each group were eartaged, and fecal samples were collected from both subgroups. The first group (500) was treated by Diamphenethide at a dosage rate of 100 mg/kg bodyweight (Armour and Corba 1972) and the second group (400) was treated by Rafoxanide at a dosage rate of 15 mg/kg bodyweight (Edward and Pary 1972). We have also vaccinated all sheep with Black disease vaccine. Mortality among both groups fell down 4 days following treatment. Five carcasses which died during treatment were given postmortem examination and found to have been killed of acute *Fascioliasis*. Fecal samples were collected from both subgroups in the first and twelfth weeks of treatment. As shown in table 1 only two out of ten positive cases were observed a week following treatment with Diamphenethide but there was no positive cases among the subgroup treated by Rafoxanide.

there was no positive cases among the subgroup treated by Rafoxanide. Examination of fecal samples on the twelfth week of treatment showed that the subgroup treated by Diamphenethide had 3 positive cases but the one treated by Rafoxanide had 5 positive cases.

LABORATORY FINDINGS:

Metacercaria from herbage samples were recovered according to the method described in detail by (Manual of parasitological laboratory techni-

ques, weybridge 1971), the snail samples were examined, in all samples *Lymnea peregra* and *L. truncatula* were observed. *L. Peregra* susceptibility to *F. gigantica* miracidia was observed to high under laboratory conditions.

RESULTS:

This trial was designed to discover that both drug; Diamphenethide and Rafoxanide should be recommended for strategic treatment of acute *Fascioliasis* in Iran. Oral administration of Diamphenethide 100 mg/kg is extremely efficient against all stages of pre-bile duct *Fasciola gigantica*. As indicated in table 1, the efficiency of Diamphenethide against mature *Fasciola* at a dosage rate 100 mg/kg bodyweight is less than against immature *Fasciola*. Oral administration of Rafoxanide at adosage rate of 15 mg/kg bodyweight is less than against immature *Fasciola gigantica*.

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KARYOLOGICAL CHARACTERISTICS OF TWO HUMAN DIPLOID CELL STRAINS ; WI-38 AND MRC-5

by

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INTRODUCTION– According to the definition (1), a cell strain is a population of cells derived from animal tissue, subcultivated more than once in vitro, and lacking property of indefinite serial passage while preserving the chromosomal karyotype, characterizing the tissue of origin. Conversely, a Cell line is a population of cells derived from animal tissue and grown in vitro by serial subcultivations for indefinite periods of time, with a departure from the chromosome number, characterizing its source. Because of the unsuitability of established cell lines with mixoploidy, attempts have been (and still are being) made throughout the world to prepare human as well as non-human primate diploid cell strains, that are seemingly safe and suitable substrates for human virus vaccine productions. Serially-cultured human diploid cell as substrates for the manufacture of virus vaccines was first proposed by Hayflick and Moorhead in 1961 (1), from Wistar Institute, Philadelphia, designated as WI-38. The human diploid cell strain, as developed by these authors was derived from the lung of a female embryo, originally obtained from Dr. Gard at the Karolinska Institutet, Stockholm, Sweden.

The mother was 32 years old at the time of abortion, and both she and her husband have been known healthy with no history of hereditary disease in either family. The reason why she underwent abortion was her generally weak condition and also her alcoholic husband's being in prison for one and a half years.

Studies performed on WI-38 cells, have shown that these cells have a limited life (4), during their active growth, they retain normal morphology and karyotypic properties and furthermore the cells do not produce tumors in test animals (7).

Another well established human diploid cell strain that has proved to be a