[Jpn. J. Parasitol., Vol. 34, No. 3, 173-174, June, 1985]

Research Note

Effect of Thymectomy, Bursectomy, Splenectomy, or Their Combinations on Larval Recovery from Tissues of Chickens Inoculated with *Ancylostoma caninum*

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(Received for publication; August 23, 1983)

Key words: *Ancylostoma caninum*, chicken, thymus, bursa, spleen

Chickens are neither natural nor paratenic hosts of *Ancylostoma caninum*, but have been found to be as suitable experimental model as mice (Agarwal and Johri, 1980; Agarwal and Agarwal, 1981). They expel about 98% of larvae in 72 to 96 hours after feeding them orally with filariform larvae. Nevertheless, the larvae do migrate into tissues including heart, liver, lungs and thoracic, leg and neck muscles. The present paper deals with effects of splenectomy, bursectomy, thymectomy or their various combinations on behavior of the larvae in one day old chickens following per oral administration of the larvae.

One day old white leg horn Ranishaver (Canadian starcross 288) male chickens, obtained from Sarkure Hatcheries, were grouped into 5 sets composed of 24 chickens each. Eight out of 24 in each set received splenectomy, bursectomy, thymectomy, thymectomy plus bursectomy, or thymectomy plus bursectomy and splenectomy. The other 8 were sham-operated giving an incision and the rest 8 were kept as control. Surgery was done without using any anaesthesia. The seven pairs of thymic lobes were exposed following a 5cm long ventral incision on the neck region and each of these lobes was carefully lifted one by one. Bursa or spleen could be easily removed after 3 cm long ventral incision in the region of the anus or below the last pair of thorocic ribs in the abdomen. Following surgery, skin was sutured and allowed to heal, using Neosporin powder as antibiotic. Two thousand filariform larvae of *A. caninum* were fed orally on the third day after surgery to each chicken. The tissues were digested in artificial gastric juice (0.5% pepsin and 0.7% HCl in 0.9% saline) overnight and the larvae in the digested material were collected by Baermann's technique and counted. Number of larvae passed through faeces were also recorded

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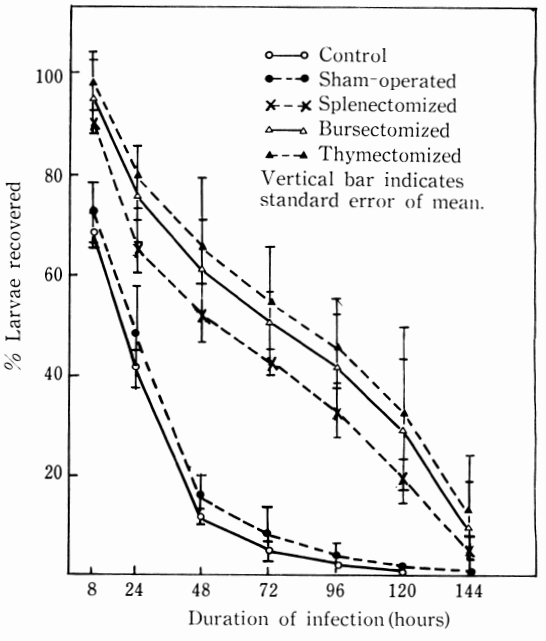

Fig. 1 Total % of larval recovery in control, sham-operated, splenectomized, bursectomized and thymectomized at different intervals of autopsy.

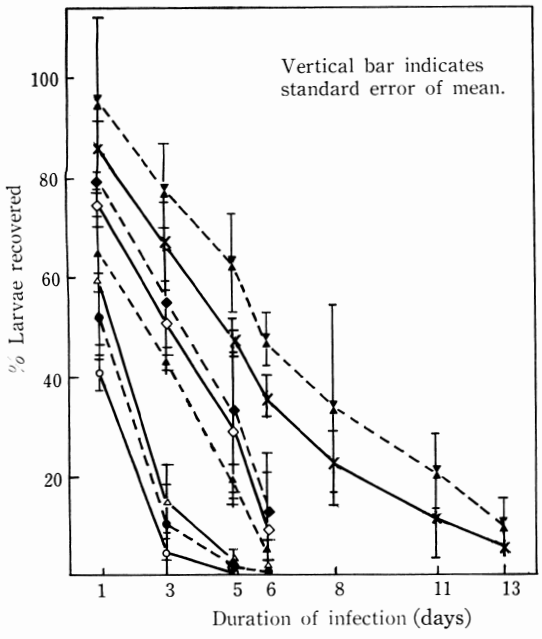

Fig. 2 Total % of larval recovery in control (○——○), sham-thymectomized-bursectomized (●---●), sham-thymectomized-bursectomized-splenectomized(△——△), splenectomized(▲---▲), bursectomized (□——□), thymectomized (■---■), thymectomized bursectomized(×——×), thymectomized-bursectomized-splenectomized (×---×), at different intervals of autopsy.

by autopsies at different intervals.

Larger number of larvae (significant, $P<0.05$) in tissues of thymectomized chickens were found to be retained than those found in bursectomized or splenectomized chickens (Fig. 1). Similarly, more larvae were recovered from thymectomized and bursectomized chickens than from either thymectomized, bursectomized or splenectomized chickens (Fig. 2). Furthermore delele chickens with thymectomy, bursectomy and splenectomy retained more larvae than those with either thymectomy plus bursectomy or thymectomy plus splenectomy or splenectomy alone (Fig. 2). Thymectomized, bursectomized or splenectomized chickens retained more larvae in tissues than in sham-operated or nontreated control chickens.

References

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短　報

Ancylostoma caninum 感染鶏において虫体回収率に及ぼす胸腺，脾臓ならびにファブリキウス嚢摘除の影響について

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Ancylostoma caninum の幼虫をニワトリに経口的に感染させる実験系を用いて，感染に及ぼす胸腺，脾臓ならびにファブリキウス嚢の摘除の影響について検討した．その結果，上記器官のいずれを摘除しても，寄生虫体数の増大と排虫の遅延が起こることが明らかとなった．その傾向は，複数の器官を合わせて摘除した場合に一層著明であった．