Chapter 11

Medical importance

Well over 100 species of eukaryotic parasite species have been reported from humans. Some of them are among the most important agents of human disease. However, almost all important species have terrestrial and/or freshwater life cycles. Examples include the malaria parasites, blood flukes and various nematodes, infecting hundreds of millions of people with often fatal consequences. Nevertheless, many marine parasite species have been reported from humans as well, although all of them can complete their life cycle without involvement of humans. They include a few cestodes, many trematodes, some nematodes and many protistans. For most of these, humans are accidental hosts and the typical life cycle is either completed in marine mammals or birds, or they live primarily in fresh water and have only secondarily become marine, or infections are entirely or largely restricted to immunocompromised persons. Among the first group are many larval trematodes, some cestodes and nematodes, among the second group are also many trematode larvae, cestodes and nematodes, and among the third are an ever increasing number of protistans such as apicomplexans and microsporidians. Most important agents of disease are nematodes causing anisakiasis, acquired by eating raw or undercooked marine fish and invertebrates, and the nematode *Trichinella* acquired by eating undercooked marine mammals such as walrus. Schistosome cercariae may cause a severe dermatitis in marine and brackish waters, lungworms of the genus *Angiostrongylus* occur mainly in fresh water but may use marine invertebrates as transport hosts and cause severe symptoms and even death in infected persons, and cestodes and trematodes accidentally acquired may occasionally also cause symptoms of varying degrees of severity.

Cestode and trematode infections

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Introduction

Given that much of the human race has taken sustenance from the sea for millennia, remarkably few species of truly marine parasitic platyhelminths have taken advantage of this. All that do are probably zoonotic (pathogens that can be exchanged between vertebrate animals and humans) and their life cycles can be maintained naturally in the absence of humans. For both trematodes and cestodes, taxonomic and diagnostic uncertainties make it difficult to be dogmatic about the numbers of species that can occur in humans. Attempts to provide comprehensive lists are in Coombs and Crompton (1991) and in the appendices to Taylor *et al.* (2001).

The route of human infection is by ingestion of marine organisms in which larval parasites (metacercariae or plerocercoids) remain alive. Thus, raw, salted, marinated or lightly cooked fish