CILIARY KINETICS AND GENETICS

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Ciliary work drives the mucociliary clearance mechanism which acts as the first defense mechanism of the lungs. It is possible to damage the cilia with adverse effects on clearance. Much speculation has been made on the connection between impaired cilia and the development of bronchitis or airway obstruction. Only with the recent discovery of a syndrome, characterized by an inborn immotility of the cilia, is it possible to study this connection rather than to speculate about it.

The syndrome, called "the immotile cilia syndrome," is characterized by a generalized congenital immotility of the spermatozoa, as well as the cilia, and results in chronic infections of the upper and lower airways and in infertility of the male. Situs inversus occurs in about half the cases. The syndrome includes Kartagener's syndrome but is not identical to it.

By way of introducing some new concepts in the field of ciliary kinetics and genetics, I would like to make three recommendations:

- If a man has chronic sinusitis and bronchiectasis, send him to the fertility clinic for a check-up of the ejaculate.
- If spermatozoa are found to be immotile but otherwise normal, listen to the heart.
- If the heart is on the wrong side, find out whether the patient has a decreased sense of smell.

These three recommendations no doubt appear bizarre when given without further explanation. I will, however, proceed to show that they have a rational basis. There is one factor in common, or so I think: Cilia are involved. When cilia are defective, a spectrum of abnormalities will occur which can be diagnosed.