

Ulcers

The pathogen:
Helicobacter pylori bacteria



Reservoir:

Mainly humans (also macaques);
Is transmitted via saliva or fecal-oral



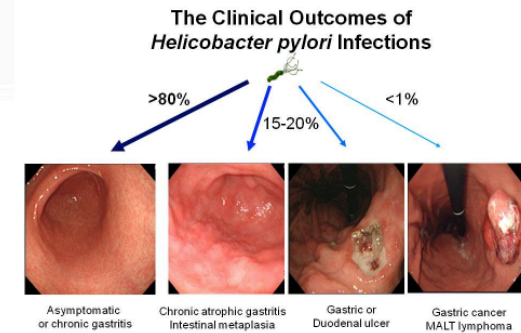
<http://parasites.czu.cz/food/ data/339.jpg>
http://www.rexano.org/GalleryImages/primates/primates_java_macaque.JPG

1

Ulcers

Symptoms:

- Nausea
- Vomiting
- Hunger
- Exhaustion



<http://www.mdpi.com/2072-6694/3/3/3018>

2

Ulcers

Mechanism of toxicity:

- Secretes two toxins that cause inflammation and tissue damage
- CagA toxin is injected by the bacterium
- VacA toxin is secreted by the bacterium

Treatment

- One week of antibiotics

Barry had issues with which of Koch's Postulates?

Establishing the connection between a microbe and a disease:

- 1st: The microbe should be found in diseased tissue, but not in healthy tissue
- 2nd: The microbe should be isolated from diseased tissue, and grown in a pure culture in the lab
- 3rd: That culture should cause the disease in a human or animal
- 4th: The microbe should be re-isolated from that human or animal

3

Barry had issues with which of Koch's Postulates?

Establishing the connection between a microbe and a disease:

- **1st: The microbe should be found in diseased tissue, but not in healthy tissue**
- **2nd: The microbe should be isolated from diseased tissue, and grown in a pure culture in the lab**
- **3rd: That culture should cause the disease in a human or animal**
- 4th: The microbe should be re-isolated from that human or animal

I got an interesting letter from a company that made an ulcer product called Denel, which contained bismuth—much like Pepto-Bismol in the United States. The company had shown that it healed ulcers just as quickly as Tagamet, even though the acid remained. The weird thing was that if they treated 100 patients with this drug, 30 of them never got their ulcer back, whereas if you stopped Tagamet, 100 percent would get their ulcer back in the next 12 months.

-- Barry Marshall

A Brief History of Informed Consent

- 1947, Nuremberg Code
- 1957, "informed consent" appears in court documents
- 1966, NIH requires **IRB approval** for any research they fund
- 1971, NIH publishes a full definition of **informed consent**
- 1974, **Common Rule** requires informed consent for all federally funded human-subject research



The principal defendants (front row from left to right): Hermann Göring, Rudolf Hess, Joachim von Ribbentrop and Wilhelm Keitel.

Required elements of Informed consent

- Purpose, duration, and what procedures are involved
- Risks
- Benefits
- Alternative procedures or treatments that might be advantageous to the subject
- If confidentiality will be maintained
- If compensation or treatment is available, if injury occurs
- Who to contact with questions
- Voluntary, so can discontinue any time

Ethics of Informed consent

- People with Alzheimer's, Down's, Schizophrenia, etc
- Children
- Those in developing countries
- Prisoners
- Impoverished
- Severely ill
- Self testers

What are the arguments for -- and against -- human experimentation in general, and self testing specifically?

"Personally, I feel that only can experimentation on human beings serve to clear the field for further effective work."

-- Walter Reed (regarding yellow fever)

"With more courage and devotion of the soldier, he risked and lost his life to show how a fearful pestilence is communicated and how its ravages may be prevented."

-- Jesse Lazear's memorial plaque

“They told me I had to write up a consent form. I disagreed with the initial recommendation. Why would I have to write a consent form? Why would I have to write it, then read it, and then sign it myself? It made no sense at all. Of course I understand what I'm doing. I'm the one who designed the study.”

-- Pierce quoting Bateman, a self tester, from The Story Within, page 44

I had this discovery that could undermine a \$3 billion industry, not just the drugs but the entire field of endoscopy. Every gastroenterologist was doing 20 or 30 patients a week who might have ulcers, and 25 percent of them would. Because it was a recurring disease that you could never cure, the patients kept coming back.

-- Barry Marshall

“...Many self-experiments have proved invaluable to the medical community and to the patients we are seeking to help. Therefore, rather than scorn such intrepid colleagues in their search for truth, I am inclined to salute them...”

-- Alan Weisse MD, UMDNJ