

Dennis Raahave

Dennis Raahave (born 20 September 1938) is a Danish general and colorectal surgeon and researcher notable for his pioneering work with stapling procedures in anorectal diseases, the bacteriological genesis of wound infections, the risk of HIV for surgeons, and faecal retention as a cause of colorectal dysfunction, appendicitis, and hemorrhoids. He is a consultant surgeon at Copenhagen University North Zealand Hospital.

Born 20 September 1938

Nationality Danish

Fields Colorectal surgery, research

Institutions Copenhagen University North Zealand Hospital

Known for Genesis of wound infections, anorectal stapling surgery, surgeons' risk of HIV, faecal retention as a cause of hidden constipation, appendicitis, and hemorrhoids

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Biography

Raahave graduated from the famous Metropolitanskolen and obtained his MD in 1965 from the University of Copenhagen. He was a registrar in surgery at Rigshospitalet, Bispebjerg and Frederiksberg hospital from 1975-91 and was appointed specialist in general and gastrointestinal surgery. He has been a consultant in surgery at North Zealand hospital since 1993. Raahave was educated as a researcher from 1972-75 at the University of Copenhagen, a lecturer from 1984-91, and a censor from 1994-2006. He delivered his doctoral thesis at the University of Copenhagen and obtained his DMSci in 1979. Over the years, he has been invited to be a lecturer, chairman, moderator, and panelist at international meetings and congresses. Raahave has been a single

opponent to a doctoral thesis at Linköping University in Sweden and visiting professor at the University of California, San Francisco and Harvard University. In 2014, he defended a new thesis and obtained a Ph.D. from the University of Copenhagen.

Raahave is a member of the New York Academy of Sciences since 1994 and of the Surgical Infection Society US and EU.

He has received legacies from Statens lægevidenskabelige forskningsråd, Novo's Foundation, Carl J. Becker's, and the Hørslev Foundation and from the Danish Pasteur Society, among others.

Research

Bacteriological genesis of surgical wound infection

During his DMSci-project, Raahave invented a new microbiological sampling method, called the Velvet Pad Rinse technique (1, 2). Using this method, he measured the density of bacteria in operation wounds after clean and contaminated operations (3, 4). Raahave and his colleagues were the first to discover the infective inoculum of bacteria in surgical wound sepsis (5) allowing wound contamination with bacteria during surgery to be associated with postoperative wound infection (6).

Surgeons risk of HIV-infection/New surgical technique

After HIV was determined as the cause of AIDS, the number of HIV-positive patients, both known and unknown increased and surgical teams may be exposed to be infected. Thus, Raahave made the first actuarial computations showing that, with a seroconversion rate of 0.01 (1%), an injury rate of 0.10 (10%) and a prevalence of 0.01 (1%), the surgeons risk of being infected was 0.2% per year and 5.82% for 30 years of surgery. With a higher prevalence in specific communities, the risk was considerably higher (7). Consequently, he introduced changes to the surgical technique. Sharp instruments were replaced by blunt types. The scalpel is only used for skin incisions and scissors (blunt ends) for further dissection. Blind receipt of instruments is completely avoided. Instead they are handled through a "neutral zone", being given by the nurse and taken by the surgeon. Disposable drapes and gowns are to be used because they are more secure as barriers than woven cloth. Raahave encouraged his colleagues in his home country to get away from the idea that "It does not happen to me" (8). He wrote several editorials to Ugeskrift for Læger and gave lectures on this topic all over Europe from 1989-96.

Faecal retention: a common cause in functional bowel disorders, appendicitis and haemorrhoids

From 1988-2007 Raahave investigated 922 patients and 44 controls in the colorectal laboratory. Using radio-opaque markers to determine colon transit time, and estimating faecal load together with clinical data, the following new knowledge was obtained (9-13):

- Faecal retention occurs in a vast majority of patients with functional bowel disorders and causes abdominal bloating and pain.
- Faecal retention occurs with prolonged or normal colon transit time (*hidden constipation*).
- In the case of an elongated colon (dolichocolon), colon transit time and faecal retention increase and aggravate symptoms.
- Intervention with a fiber-rich diet, supplementary fluids, physical activity, and a prokinetic drug accelerates colon transit and reduces faecal load, thereby relieving abdominal symptoms and improving defecation.
- Measuring colon transit time and assessing faecal retention is a better guide for a positive functional diagnosis than symptom criteria in patients with functional bowel disorders.
- Familial colorectal cancer occurs significantly more often in patients with bowel disorders, who have greater faecal retention than controls.
- An obstructing faecalith seems to be derived from faecal retention in the colon.
- Patients with functional bowel disorders are more frequently appendectomized and have a prolonged colon transit time.
- Patients operated for refractory constipation often have a redundant colon with prolonged colon transit time and faecal retention. These patients have a high rate of previous appendectomy.
- A subtotal colectomy with ileosigmoidal anastomosis usually results in relief of defecation difficulties, abdominal pain, and bloating.
- Stapled haemorrhoidopexy for prolapsing haemorrhoids is a durable operation. In the case of a residual or persisting prolapse, re-stapling can be performed with the same good results.

- The actual results further support an earlier unifying theory of “a common cause” of diet-related colon diseases, such as constipation, colon diverticula, cancer, acute appendicitis, and haemorrhoids.

Faecal retention in the colon may be the common cause of these diseases.

Raahave condensed these papers into a Ph.D.-thesis, defended in 2014. He thereby became the oldest person to receive a Ph.D.-degree in Denmark.

Raahave has also shown that a perineal stapled prolapse resection for rectal prolapse was a good option for old and fragile patients (14)

Up-to-date contributions: 87 scientific articles, 124 presentations in scientific societies, 5 book chapters; reviewer international journals.

Others

Many interviews and some chronicles in newspapers, appearance in radio- and tv-programmes.

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