



Growing focus on hernia surgery

In only a few decades hernia surgery has developed from being an operation that was performed by the youngest and most inexperienced to now being a highly specialized clinical field within general surgery with extensive research activity. Scientific communities have been established and dedicated Hernia Congresses are held around the world. This development was initiated recognizing that hernia disease and complications to hernia repair involve very high cost for society and impaired quality of life for the patients.

Worldwide, more than 20 million patients undergo groin hernia repair annually (1). Thus, eventfree outcome is important to avoid extensive sick leave and to diminish chronic pain after surgery (2). Operative techniques have undergone extensive development starting with the operations without a mesh like the Bassini (in 1887), Marcy (in 1892), McVay (in 1942) and Shouldice techniques (in 1953). The first operative technique using a synthetic mesh was the Lichtenstein repair (in 1989), followed by Plug and Patch (in 1998), PHS plug (in 1999), Nyhus (in 1988), and Stoppa repair (in 1984) (3). Many more open techniques have been introduced (4,5), but their exact place is still unknown. However, it was obvious that many of these open mesh based techniques had significant problems with recurrences and chronic pain, and this together with the general excitement in the early 90's around laparoscopy led to the development of the two main laparoscopic techniques, the transabdominal preperitoneal repair (TAPP) and the total extraperitoneal repair (TEP). These two techniques were introduced in 1993 and are growing in many countries. Thus, in 2018 in Denmark 59% of all groin hernia repairs were laparoscopic (6), and in Sweden 36% were laparoscopic in 2018 (7).

With ventral hernia repair there seems to be even more complications and recurrences compared with inguinal hernia repair. Research in this clinical area has in the last decades increased and this development may have been driven by publication of long-term results from the international databases where these prospective observational data have formed the basis for large randomized trials. This research development where observational data will define the clinical problem and then form the basis for large randomized trials is natural and underlines the role of the large clinical databases in solving important clinical problems.

However, the problem then comes with designing these large interventional trials since ventral hernias typically differ substantially. It is therefore more difficult to design randomized trials in ventral compared with inguinal hernia repair. An exception is the primary ventral hernias such as umbilical and epigastric hernias that do not differ so much between patients other than in size (8-10). For the incisional hernias and especially the large ones, research design is challenging and research results that can form the basis for clinical guidelines are therefore difficult to obtain (11). Nevertheless, it all starts with defining the clinical problem, and here observational data comes into play (12).

Denmark and Sweden probably have some of the strongest registry-based research traditions in the world with hundreds of different clinical databases that can be linked to other national registries where data can be traced back to individuals (13,14). The registries may contain information about the entire population, or about any individual in the population who has a particular characteristic or who has experienced a particular event. Data can then be used, for example, to complement surveys or follow a sample of individuals over time and report clinical outcome after a certain intervention or diagnosis.

There are numerous established hernia registries around the world including Danish Hernia Database, Swedish Hernia Registry, Herniamed, EuraHS, Club Hernie, EVEREG, and the AHSQC (15). The Danish Hernia Database was established in 1998 and the Swedish Hernia Registry in 1992 (15). The Danish Hernia Database is the only one to qualify as a genuine national registry where participation is mandatory by law for entry of all procedures by all surgeons performing a hernia operation. All other registries have to be considered as voluntary and completeness of data depends upon the participating hospitals and surgeons, however, the Swedish Hernia Registry covers almost all operations in Sweden, so it may also be considered to have national coverage. Funding of the databases vary across countries, and only the Danish Hernia Database and the Swedish Hernia Registry are publicly funded (16). In Denmark governmental funding covers the operational costs, and in Sweden the hospital pays a small fee to the database for every patient that is entered.

There are numerous international hernia societies around the world (e.g., European Hernia Society, American Hernia Society, Asia-Pacific Hernia Society, British Hernia Society, Hernia Society of India, Brazilian Hernia Society, International

Endohernia Society, Canadian Hernia Society, Ghana Hernia Society, Baltic Hernia Society, Australasian Hernia Society, Afro Middle East Hernia Society, Hong Kong Hernia Society, Serbian Hernia Society, Japanese Hernia Society, and probably many more). These societies have individual meetings, and every 3 years the European and the American Hernia Societies have a joint congress attracting thousands of clinicians and researchers as well as industry. The next joint congress will be 26–29 May 2021 in Copenhagen, Denmark.

We have therefore chosen to launch a theme series on hernia surgery focusing on some of the current research activity in Denmark and Sweden. The papers in this theme series do not cover all the different areas of ongoing research but will focus on some of the activity including the influence of the two hernia registries. For an overview of previous research activity from the Danish and the Sweden registries you are referred to their lists of previous publications (17,18).

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