Professor James Garden: my experiences and opinions of laparoscopic surger

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Professor James Garden (Figure 1) is Regius Professor of Clinical Surgery and Head of the Department of Surgery in the School of Clinical Sciences and Community Health at the University of Edinburgh. He graduated from the University of Edinburgh (1977) and trained in Glasgow, Edinburgh and Paris in hepatobiliary, pancreatic and liver transplantation surgery. He undertook the first successful liver transplant in Edinburgh in 1992 and the Scottish Liver Transplant Programme has now grown to incorporate kidney, solid pancreas and islet cell transplantation. As a specialist hepatobiliary and pancreatic surgeon over the last 22 years at the Royal Infirmary Edinburgh, his interests have extended from laparoscopic cholecystectomy to liver transplantation and are currently in the management of benign and malignant disease of the liver and bile ducts including the surgical treatment of complex bile duct injuries.

Figure 1 Professor James Garden

HBSN: Can you please briefly describe laparoscopic surgery for diseases of liver and pancreas?

Prof. Garden: Laparoscopic surgery has become increasingly important in the management of hepatobiliary and pancreatic disease. There have been great advances in the last five or ten years in the use of laparoscopic surgery for cancers of the liver and pancreas. However, some reports do not seem to demonstrate a consistent benefit for patients in the early days or weeks following the surgery. We are still waiting for longer-term data to establish whether there remains benefit in terms of long-term survival. There may be a benefit in terms of short-term recovery but that should not be achieved at the cost of poor longer-term outcome in cancer patients. There must be a balance between making sure that the immediate recovery of the patients is good without compromising the long- term survival.

HBSN: What are your experiences in avoiding complications during the laparoscopic surgery?

Prof. Garden: The main emphasis on complications originated following the introduction of laparoscopic surgery in routine gallbladder surgery. Laparoscopic surgery for HPB cancer tends to be undertaken in a limited number of specialized centers. However, laparoscopic cholecystectomy is undertaken in many hospitals, but there has been concern that injuries to the main bile duct during the procedure still occur. There are clearly a number of ways that surgeons should try to avoid that. It is important that they have proper facilities and that they are well trained. They need to identify the surgical maneuvers that have to be undertaken to avoid the risk of major injury or damage to other structures.

There are a number that have been popularized. One of those are the maneuvers described by John Hunter form Portland, Oregon who stresses the importance

of undertaking dissection close to the gallbladder away from the bile duct ensuring that the surgeon doesn't use diathermy or energy sources that might damage the structures until the anatomy has been identified safely. He suggests that operative cholangiography should be used almost as a routine to help identify the anatomy to ensure the operation is completed safely. Another North American surgeon, Strasberg has emphasized the importance of what is called the critical view, identifying anatomy very close to the gallbladder making sure that the surgeon stays well away from the bile duct and identifies the two structures that connect the gallbladder to the main bile duct and porta hepatis. There is also third technique which has been popularized by Tom Hugh in Australia who has suggested that it is best to use anatomical landmarks related to the liver itself and to only undertake the dissection in the safe zone well away from the porta hepatis above the landmark of Rouviere's sulcus. A number of different techniques all employ the same basic principle of the surgeon being absolutely certain about where the dissection is being undertaken, regardless of how challenging the anatomy is or how challenging the pathology or inflammation might be.

HBSN: What do you comment on the role of intra-operative cholangiography on the earlier detection of laparoscopic complications?

Prof. Garden: This is a controversial area. It has been suggested that routine intra-operative cholangiography will both avoid and detect injury to the bile duct earlier. There is controversy about this because the standard of care in many centers is not to undertake cholangiography. However, the data suggest that if routine cholangiography is used, this is good or useful in detecting injury at the time of surgery which is the best time to identify that something has gone wrong. If there is any delay in detecting complication, then it will compromise the patient's recovery and compromises the ability of the specialized surgeon to repair the damage to the bile duct.

HBSN: What do you think are the main reasons for the injuries and complications appearing in the laparoscopic surgery?

Prof. Garden: I think that the principle reason tends to be misidentification of the anatomy. The surgeon loses his or her bearings or the landmarks and starts undertaking the dissection in the wrong area. Instead of dissection in the area close to the gallbladder, they are undertaking the disection close to the main bile duct. The orientation of the anatomy at the time of surgery is very important and the techniques that are described to try to help the surgeon to identify those landmarks should be used to avoid injury to the bile ducts. If the surgeon cannot identify the anatomy, they should not persist with the dissection and risk injury to a major vascular structure or the main bile duct. Sometimes it is better either to convert to an open operation if they feel more confident to identify the anatomy, or to abandon the procedure if that surgeon is not able to complete the operation because of the complexity of pathology or the anatomy.

HBSN: What do you comment on the relationship between surgeons' experience and the outcome of the surgery?

Prof. Garden: We have conducted a study which has looked at the relationship between the number of laparoscopic operations a surgeon has undertaken (volume) and the outcome of the patients. Data form Scotland demonstrate that low volume hospitals do tend to have a higher complication rate. They tend to have a higher rate of readmissions, and longer hospital stay. It is not always that the relationship is linked to an individual surgeon but it would seem to make sense that if a surgeon is undertaking operations regularly, working within a high volume center, then it is likely that the complication rate would be lower, the outcome would be better.

HBSN: Some surgeons consider laparoscopic surgery useful in any kind of procedures, while others hold the idea that it is only suitable in certain cases. According to your knowledge, what's the current status of laparoscopic surgery applied in different areas?

Prof. Garden: I think it may be dangerous to make generalized statements. There are clearly some centers where their surgeons have been very well trained in laparoscopic techniques and have exceptional skills. They can achieve the same results or better results than for open surgery. If audit demonstrates that these results are sustained, then that is an obvious approach. However, surgeons who obtain good results by open technique should not necessarily feel threatened that they have to undertake a laparoscopic approach. I think that patients are trying to push for laparoscopic surgery to be undertaken. So many centers that are using conventional open surgical

approaches or are adopting laparoscopic techniques need to make sure that the surgeons are well trained and the advantages of laparoscopic approach are actually delivered to the patients.

HBSN: In your article entitled "Guidelines for resection of colorectal cancer liver metastases", it is said that "There are no randomized studies assessing outcome following resection compared with no treatment or other therapeutic modalities in patients with known resectable liver metastases as it is generally considered unethical not to offer surgery for resectable diseases." Do you think doctors should offer surgery to all patients with resectable disease?

Prof. Garden: Although it is said that the best evidence is usually from randomized controlled trials, there are actually many techniques in surgeries which have been introduced on the basis of observation in a few patients. There are compelling data that show resection for certain patients with metastatic colorectal cancer is associated with a cure. So it is very difficult to deliver a randomized study and have patients volunteer to be included in such a study. There has been a lot of progress made in the management of colorectal metastasis. We now have much better systemic chemotherapy available to treat patients with advanced disease, so that there are increasing numbers of patients that can be considered as potential candidates for liver resection. Surgeons now often believe that resection is important even to patients who have very advanced disease and yet perhaps they do not appreciate often the good long term survival of these patients is actually delivered by systemic chemotherapy. Clearly if the disease can be completely removed and surgery can be undertaken curatively, that is what should be offered to the patients. There is evidence that additional adjuvant chemotherapy produces better long term results. For patients who have advanced disease, we have to be very cautious as surgeons not to believe that debulking or just removing some of the tumors actually produce a better outcome when in fact there is evidence that sustained chemotherapy is perhaps producing beneficial results.

HBSN: The guideline was issued in 2005 and will be reviewed periodically. So, is there any new evidence found in recent years?

Prof. Garden: We have just reviewed the evidence in these last two years and the guidelines will be renewed. There remains controversy about which chemotherapy or combination of chemotherapy is best to use. New information becomes available all the time but the 2005 guideline is on the whole still useful. It is more in the area of chemotherapy managing very advanced disease where the evidence is less clear.

HBSN: Is there more evidence expected to be found in the future?

Prof. Garden: I believe that it is very much to do with the combination of chemotherapy. There are now some fairly aggressive chemotherapy regimens. Some of these incorporate inhibitors of vascular endothelial growth factors. The problem of some of these agents is that they may bring additional surgical complication. Some of these drugs do affect not only liver regeneration but they may also detrimental effects to other organs as well. So I believe in this area there is still much to do.

HBSN: Thank you so much.

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