On the FRONTLINE

Surgeon Guy-Bernard Cadière tells us about hospital life at home and abroad

Dr Guy-Bernard Cadière is a Belgian pioneer of keyhole surgery who has practised minimally invasive procedures in war-torn and developing countries around the world. Away from the operating theatre, he's a top-class sportsman and was once a professional saxophonist. Besides his work at Saint-Pierre University Hospital and ULB in Brussels, he frequently travels to the Democratic Republic of Congo to work with Dr Denis Mukwege, founder of the Panzi hospital in Bukavu, which treats women and girls who have been raped and mutilated.

How did you start working in laparoscopy?

In 1989, I was diagnosed with leukaemia, and after a bone marrow transplant I had to spend two months in an isolation unit; I used that time to work on laparoscopic techniques. I published papers and was the first person to do obesity surgery by laparoscopy. It changed my life and led me to travel all over the world.

What does the procedure involve?

It is minimally invasive surgery, with one entrance point for a camera and light and other entrance points for instruments. It's more comfortable for the patient, but you need skill and it's difficult to learn. What we see on the screen is two-dimensional and the point of view depends on the position of the camera. The advantage for teaching is that what the surgeon sees on the screen is exactly the same as everyone else. I founded the European School of Laparoscopic Surgery to pass on our experience.

How did this develop into obesity surgery?

The first surgery I did was in 1992, inserting a gastric ring. The advantage was that we made only small holes in the stomach. When you do an incision on someone who is obese, there is a risk of hernia. With my surgery, there were no stitches, no risk of leaks, and people lost weight.

Obesity is the illness of the poor in rich countries and the rich in poor countries

It had an incredible impact here in Europe and the rest of the world. Everyone started to do it, even those previously performing gastric bypasses, because there was no morbidity. It was approved by the FDA in the US based on a study of 100 cases. I was the first person to look at what happened 12 to 13 years after the intervention, and it wasn't great. This was because people adopted bad dietary habits. They were no longer able to eat meat, but ice cream and cola posed no problem. So I was the first in the world to say we had to stop this.

I now do around 400 obesity interventions a year: 350 gastric bypasses and 50 gastric sleeves. We are submerged by the demand but take a holistic approach. At the Brussels Weight Loss Center, we have dieticians, physiotherapists and a beauty centre. Our patients are generally women, around 35, who have had two children, and are for the most part poor. Obesity is the illness of the poor in rich countries and the rich in poor countries. These women have lost all power of seduction, they barely exist. After the initial weight loss, the second phase is to rebuild muscle; when they drop below 100kg, they exercise with a specific programme. The third phase is a makeover. I operate on people when the risk of being overweight is higher than the risk of operating. The aim is to eliminate the risk of diabetes, cardiac problems, sleep apnoea. A success for me is to see these women rediscover their confidence and self-esteem.

How have you used your skills abroad?

I've worked for Médecins du Monde in Vietnam and Médecins Sans Frontières in Cambodia. Over 20 years I have worked in 11 laparoscopy centres in African countries and Cuba. I wanted to develop laparoscopy around the world, because the advantages when you operate in Africa are much more important compared to here. For example, there's rarely catering in hospitals there; and if you do an intervention, the whole family are there in the operating theatre so it's not sterile. There are cooking pots under the patient's bed. They may cook outside but they leave all the utensils

there so that they won't be stolen. So there's a higher rate of infection, which means the patient has to stay in hospital longer. As all the family are present, there's no economic activity in the village. With laparoscopy, there's one dissolvable stitch, so they can return home immediately. In the beginning, I tried to do it very simply with four or five instruments. It was difficult to find carbon dioxide – used for inflating the stomach – in Africa, but I adapted beer-making equipment, and you can find video screens everywhere. Then Swiss endoscopy manufacturer Storz supported me and made instruments that are simple and reusable. They also provide the equipment that accompanies us to Panzi.

Can you describe your relationship with Dr Mukwege and your work in the DRC?

We met when he was in Belgium in 2011 to receive the King Baudouin International Development Prize. He came to our department and asked me to intervene using laparoscopy in the surgical repair of genital fistulas – a hole between two internal organs. On top of the prevalence of rape with extreme violence, there is a lack of obstetric care in the DRC. In a woman who is pregnant but doesn't receive care, or who falls pregnant very young and has a small pelvis, or who has been raped, the baby's head can become stuck, creating a fistula.

I went over there with a team and now we visit for one week every three months. I'm not part of an NGO or a mission financed by the Belgian government. Humanitarian aid suggests that one party gives and the other says thank you, but there's no balance of power between Denis and me; it's a friendship. He is the surgeon with the most experience in the world repairing fistulas, including operating on children. It's amazing how quickly he works, with just a few movements of his fingers. He has taught me and my team an enormous amount. Here at Saint-Pierre, a urologist or gynaecologist may only see one genital fistula in his life; over there we do 60 in a week.

We operate intensively, non-stop from around 7.30 until 21.00. There are now three operating theatres and we pass from one to another. I've picked up experience in gynaecology and I can now stitch up the bladder and re-direct the urinary tract. You are obliged to do this when everything is destroyed and respects no order at all. It's the same for my team, who include a gynaecologist, a gastroenterologist, an anaesthetist, two specialised instrument nurses who manage all the material, and my son, who is also a surgeon. My ex-wife, who is an anaesthetist and originally from the Congo, also occasionally joins the team. Everyone fights to accompany me to Panzi. This mission creates solidarity and improves the atmosphere at Saint-Pierre.

What's your motivation for such work?

People ask me how I can go to the Congo with war going on. But when I get on the plane with my team, I'm a happy man because I meet exceptional people. I'm in love with every woma I operate on. These women never asked for thi they are poor and they are mutilated when the are raped with extreme violence. When I arriv there is a queue of women waiting to be treate These women are doubly incontinent, they cannot leave their homes, they smell bad, thei husbands don't touch them, they are isolated stigmatised within their community. That is t magic of surgery; when we have reconstructe

everything, they are dry. That's the term we use. Then you see in their eyes an incredible desire to live. What is interesting is these women's growing consciousness of their strength. They worked for their husbands, they laboured in the fields; they never before thought that they had the right to have their voice heard. Denis's motivation is clearly to help others; he thinks life is meaningless if it means living in a place like that. So he fights to help others improve their lives because he cannot conceive life otherwise. He does an extraordinary job and has great charisma.

Why did you and he write the book Panzi?

Denis and I are the same age, 60, but he is a Protestant pastor and lives in the DRC, while I'm white, atheist and live in Belgium. How is it possible that we think along similar lines and share the same inspiration? How did we fall in love at first sight? We said we would write a book in which we ask each other these and other questions, how the only fight that is worthwhile is the humanitarian combat that unites us, as well as reflections on all this barbarity. We are also united by our families. Very quickly after meeting, his children became my children and my children became his. When my two children go there, they are going to Papa Denis. We have obligations to each other's children. This is a form of solidarity which has completely disappeared here in Europe.

What are the reasons behind the conflict in the DRC and the violence towards women?

The conditions there are exceptional; it's a war, it's crazy. These women have been born in a place that is rich in natural resources, gold, diamonds and coltan, used in electronics. Suddenly there are rebels who descend on the village and massacre and rape them. Why are their children raped? They do not know. They are terrorised and they leave, which is the rebels' aim. Rape with extreme violence is used as a strategy of war for the displacement and diminishing of the population. If there is coltan in the village it's worse, because they know that rebels will arrive and kill them. People in the West don't know there is blood on mobile phones. That doesn't mean there shouldn't be new technology, but it's important to have traceability. It should be possible to place a radioactive material that can be recognised and tracked. This is not my speciality, I'm a doctor. But what I do know is that women are being raped, the corruption is absolute, and you cannot trust anyone. I believe the number of rape cases is diminishing slightly on the rebel side, but there's an increase in violence among civil society. Children are raped by their neighbours. There's no punishment, and the attacker knows he will not face justice.

Have you ever felt in danger?

We have a lot of protection. There are bodyguards until the operating block. But yes, we've had a few tense moments, there have been thefts from our convoy en route for the airport. We don't know if there's also a contract out on us. But really we've never had a moment where we've said, "We don't know what do, this is dangerous, let's get out". Denis is now protected by the UN mission Monusco, which reassures me.

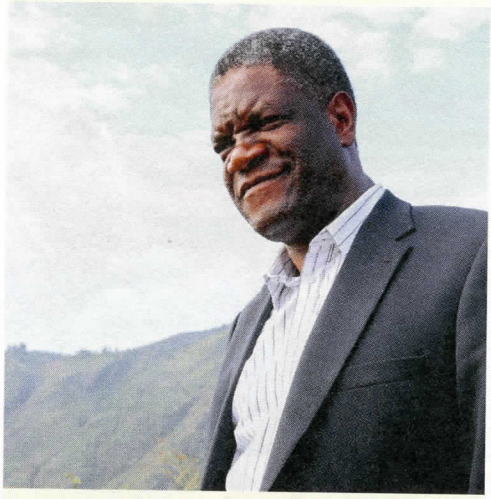
Any future plans and do you have time for other activities?

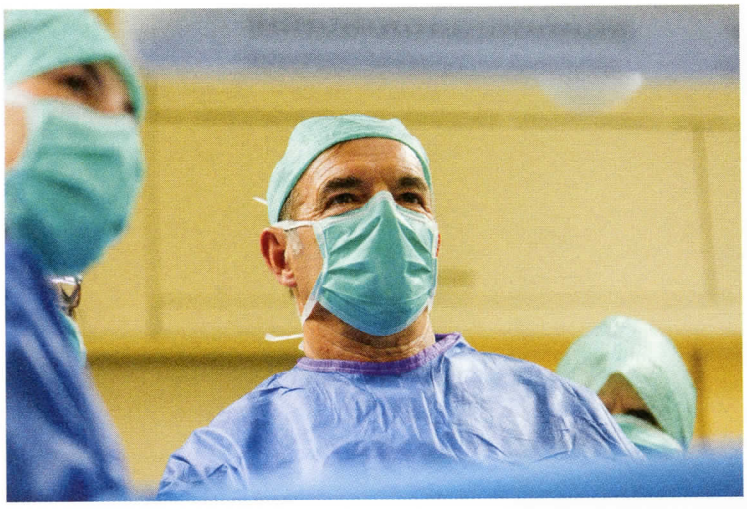
I haven't ruled out ending my days in the region when I retire, especially if my children remain. My son has been there now for six months, and my daughter who is a journalist is there too, putting her knowledge to good use for the cause of Denis. But I'm not ready to retire yet. As for other activities, I've had to make choices in my life. I don't play music anymore [Cadière was a professional saxophone player], although playing the sax can help you perform surgery; it's the same dexterity. I wasn't a good musician but I had the opportunity to work with some great musicians and it was fun. But I've never stopped practising sport. You need physical strength in surgery. When I finish here, I return home and go cycling. I need sport for the release of endorphins, and then I sleep well. ● SC/NH

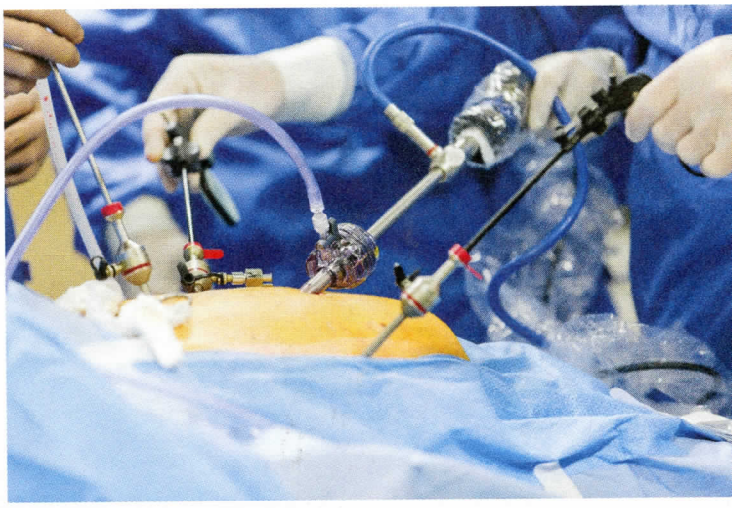
THE MAN WHO MENDS WOMEN

Dr Denis Mukwege (pictured) is a Congolese gynaecologist who has spent the past 18 years living in a warzone, committed to improving the plight of thousands of women and children mutilated by sexual violence. His treatment of the victims of the conflict in eastern Congo extends to care in the community and a career as an award-winning activist for gender equality. He travels the world to recount the horrendous stories of rape and torture of women and children, but the fighting and attacks continue. In 2012, Mukwege survived an assassination attempt at his home. He fled abroad with his family but flew home after women he had treated clubbed together to pay for his airline ticket. There has never been an investigation into the threat to his life. An award-winning documentary about his combat by Thierry Michel, The Man who Mends Women: The Wrath of Hippocrates, was released in 2014.

➔ **panzifoundation.org**







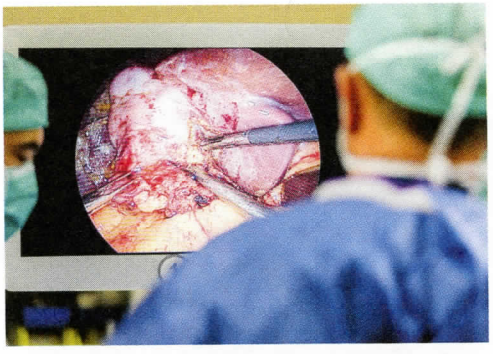
BEHIND THE SCENES

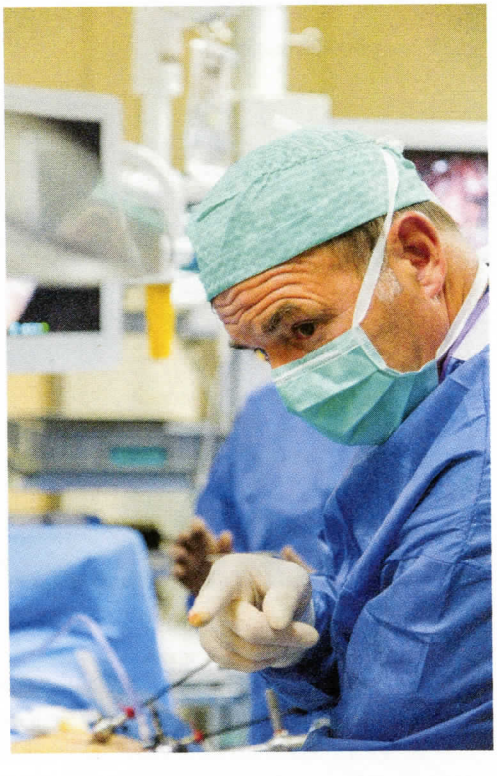
Dr Cadière invites us into his operating theatre to observe him in action

Photographer Natalie and I don surgical scrubs and follow Cadière to the main sprawl of Saint-Pierre, to observe the removal of an infected gallbladder. We walk through the emergency entrance just as an ambulance offloads a knife wound victim accompanied by police. It's a vivid reminder that this is a frontline city hospital. "On average, we receive one stabbing a day," says Cadière.

In the operating block we put on shoe covers, mask and cap and are told not to touch any part of the patient's body; otherwise we have free access. Cadière is clearly in his element. A colleague has barely attached the ties of his gown before he gets down to business. The patient is under general anaesthetic, his stomach is exposed, shaved and disinfected, while the sound of his heartbeat beeps in the background. An octopus-like apparatus surrounds him: tall columns with movable video screens and other equipment attached. In front of Cadière and his multinational team of three is one large screen with a high resolution 2D image, simultaneously broadcast to the other screens via the camera inside the stomach cavity. This is inflated by carbon dioxide.

At first glance, and with zero anatomical knowledge, it looks like a dramatic moonscape. We watch instruments enter the work space, foreign bodies piercing skin and tissue. There's a pinching tool that carefully moves things around, and cutting and cauterising tools that delicately peel through the mass of fibrous tissue surrounding the gallbladder, which sits below the liver. Cadière works carefully, in continual discussion with his team. A burning smell accompanies the cauterising and Cadière instructs the anaesthetic team to increase coagulation to the patient to reduce blood loss. They are concentrated on the work, but the atmosphere is relaxed. Though continually in teaching mode, Cadière banters with the other surgeons, before he decides to dissect the cystic duct connecting the gallbladder to the common bile duct. The extent of the infected tissue has made it difficult to distinguis each organ, and there are individual variations in anatomy. Before it is cut, the duct is clipped, "three times to make sure we sleep at night", says Cadière.





One of the trickiest parts is the removal of the redundant gallbladder. A plastic bag is introduce into the cavity; twice the organ is manoeuvred into it, but each time it breaks as the team try to extract it via one of the holes in the stomach. "The simplest thing would be to make an incisio in the abdomen now," says Cadière, but they persist until on the third attempt they succeed. "The team is very important in laparoscopy. You need to be able to trust the person holding the camera – they are your eyes," Cadière explains. After a dramatic disinfection – iso-betadine is poured into the main hole and erupts as the CO_2 is released, removing any residual debris with it Each entrance point is then pinched and stapled The patient will return home the next day, with his staples removed six days later.

There have been far more steps in the procedure than outlined here. While a routine operation, it still requires meticulous attention to detail. The operating theatre can also be a stage for creativi and ingenuity. Cadière likens surgical precision abstract art or improvisation by a musician. "Yo aim to make the minimum of gestures in surgery he says. "It's better for the patient, but it only comes from years of experience." **SC/NH**