RCPE Casenotes: Past & Present Podcast - Oncology Transcript

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[introductory music]

Welcome to the Royal College of Physicians of Edinburgh's Casenotes podcast. Over the next few months we're going to delve into the different physician branches or specialties.

Just to start off with, what is a physician? Most people know what a GP is, and what a surgeon is, but not everyone knows exactly what a physician does. Well the formal description is specialists in internal medicine, so diseases and complaints that happen inside your body. And even if that sounds unfamiliar, you have almost certainly heard of a lot of the areas that this covers, like cardiology, diabetes, allergies, palliative care, infectious disease and neurology. These are all branches of medicine, or specialties, that physicians are responsible for.

In each coming episode of Casenotes we will pick one of these specialties and delve into its history, looking at its development over hundreds of years, and some of the interesting stories and cases from the past. We'll also talk to a current physician working in that area, to find out what it is like to be working as a specialist physician in the twenty-first century.

[musical interlude]

In this episode we're going to look at oncology, or the study of cancer. We'll start by looking at the history of the specialty, then we're going to talk to a current practitioner, Dr Caroline Michie, about her experiences, and we'll end up with a case study of Napoleon Bonaparte.

We're going to start in ancient Egypt, where the earliest known descriptions of cancer were recorded on papyrus. Eight cases of tumours were described as well as the process of removing breast tumours by cauterisation to destroy the diseased tissue. Although the notetaker also recorded that there was no treatment for cancer, and this would only reduce the symptoms, not remove the disease.

In ancient Greece the celebrated physician Hippocrates (he of the *Hippocratic Oath*) wrote about cancer, alongside many other diseases. Very little is known about who Hippocrates was and which of the writings which have been attributed to him (as part of what is known as the Hippocratic Corpus) were actually written by him. The idea of Hippocrates, who he was and what he thought, has been invented, reinvented and moulded over and over through the centuries, depending on current cultural, political and medical theories. But while we might not know for sure if he wrote it, as this work is attributed to him, let's – for the sake of simplicity – assume that he did.

In this work there is a great deal of discussion of diseases which produce masses or lumps and it uses the words carcinoma and carcinos (after the Greek word for crab) to describe them. Hippocrates recommended exercise, vomits and laxatives, and for more serious cases, surgery. He described the steps as "That which medicine does not heal, the knife frequently heals; and what the knife does not heal, cautery often heals; but when all these fail, the disease is incurable." He recommended that the most severe cases be left untreated, saying that "Occult cancers should not be molested. Attempting to treat them, they quickly become fatal. When unmolested, they remain in a dormant state for a length of time".

Although lots of physicians who followed wrote about cancers, including the Greek physician Galen who was hugely influential in fields such as anatomy, pharmacology and philosophy, none of them made any great steps towards improving understanding of, or treatment of, this condition.

The next big steps in understanding of cancer didn't happen until the 1700s. In 1761 John Hill, an English botanist, made the connection between tobacco and cancer, stating that "No man should venture upon [tobacco] Snuff, who is not sure that he is not so far liable to a cancer: and no man can be sure of that." In 1775 Percival Pott, who worked at Saint Bartholomew's Hospital in London, gave the first description of an occupational cancer. He noted that cancer of the scrotum in chimney sweeps was caused by prolonged exposure to the carcinogenic agents in chimney soot – the first time that the origin of a type of cancer was traced to a specific external cause. Pott understood the importance of

early intervention and how, if left unchecked, the cancer could spread to other parts of the body.

But in spite of these developments, many theories as to the causes of cancer still abounded. Perhaps it was caused by a bacteria or a parasite. A worm, mould, fungus – all were taken as possible causes. Perhaps cancer was caused by trauma – by a fall or other injury. Perhaps cancer was a liquid that seeped around the insides of the body.

One common theory was that cancer was contagious. Because members of the same household, relatives of one another, often had the same or similar cancer experiences, it was hypothesised that they were catching it from one another, that it was an infectious disease. And, indeed, the first cancer hospital in France was moved from the city in 1779 because of public fear that it would cause cancer to spread throughout the city.

It wasn't until the late 1800s these conflicting theories were finally put to rest. The improvement of microscopes enabled scientists to study cells in detail. And Rudolf Virchow discovered that all cells, even cancerous cells, derived from other cells. From then on many improvements in cancer diagnosis and treatment took place in fairly quick succession. In 1882 the first radical mastectomy took place. Four years later, in 1886, the first documented evidence was presented of the inheritance of susceptibility to cancer from a parent to a child. Two further discoveries in the late 1800s made huge inroads into cancer studies – first the development of the x-ray in 1895 and then, in 1898, Marie and Pierre Curie's celebrated discovery of radium. Within a few years radium was regularly used in the treatment of cancer.

I'm going to stop there, at the end of the 1800s, because while there is always more that can be said, we have now brought the study and treatment of cancer into the modern scientific era.

[musical interlude]

Daisy: So we're now looking at oncology in the present day, and we have with us Dr Caroline Michie. So I wondered if we could start off by just you saying a little bit about yourself, you know, where you work and what you do?

Caroline: Of course! Thank you very much for having me. I'm a consultant medical oncologist at the Edinburgh Cancer Centre, and a medical oncologist is slightly different from clinical oncologists, and I could come on to that later. But I'm also Honorary Senior Lecturer at Edinburgh University, and I'm also what's called an NRS Research Fellow.

Daisy: So pretty busy then, I think it's safe to say. So if we start with the basics then, what is oncology? How would you define what you do?

Caroline: Ooh, it's a good question. OK, so, I mean oncology is certainly the treatment of cancer. We don't tend to do the diagnostics, which sometimes the public are a bit surprised about, so people only come to me generally with a diagnosis of cancer, and we actually rely on all our colleagues in the other specialties to do the diagnostics in most cases. So oncology is generally what we would technically call non-surgical oncology, and that would be radiotherapy, drug treatment, or chemotherapy. And medical oncology tends to be a lot of chemotherapy, with a lot of clinical trials. And clinical oncologists can also give radiotherapy. And in other countries it's done slightly differently, so you might be called a radiation oncologist in another country. But here in the UK, actually, my clinical oncology colleagues can do everything. So they are trained to give any aspect of non-surgical oncology, whereas a medical oncologist like me is not trained to give radiotherapy. So it's all too much physics for me, so…

Daisy: Well thank you for explaining in a very clear way what oncology is. I'm kind of interested to know what oncology isn't as well. So, you know, you talked about the patients sort of understanding, but are, is there anything which people, you know, the stereotypes around oncology? Or are there misconceptions or sort of areas where people sort of really don't understand what it's all about, I suppose?

Caroline: Oh yeah, I think there are, I think sometimes people don't really know what the point of radiotherapy or chemotherapy is. Particularly in breast cancer, when they come to see me, I actually spend quite a long time going through the rationale for these treatments, and it's surprising how many people don't really understand what they're actually meant to be about. Like everybody knows how to treat cancer but not really very clear about the specific details of it. And, I think, some

of our other colleagues in other specialties will also look after cancer patients, they don't have to come to oncology. But there are certain, I guess each different tumour type is managed differently. So our, my breast surgical colleagues will see lots of patients in follow up, who are still on drug treatment like tamoxifen and oestrogen blockades, they won't necessarily come to oncology all the time. But we all really work in a wider team and support those colleagues, so, and I think it can be difficult to navigate, because there's so many people involved in a cancer journey.

I think whenever anyone asks me what I do, you see the kind of face, really, and I know everybody thinks “Oh! Alright” and they don't know what to say, and they often say, “well that must be very sad”. And actually, I really like debunking those myths, because most of my patients are cured, and we have lots of very positive discussions and it's actually not that common for our patients to die in breast oncology. So I don't find it depressing. There might be some sad situations we have to talk about, but one of the joys about it is that you really get to know your patients really well, and you get to know their families and what makes them tick. And it's that continuity that I really love. So when someone you know really well does start to decline, that is of course quite sad, but I think it's our job to do that well and to support that family. And I try not to take it home with me, but we're all human. And if you didn't feel something for that family or that patient, then I think there’d be something wrong. But yeah I think that's really part of the reason I love the job, is that we really do get to help people at the toughest time of their life.

Daisy: Thank you. So you've touched on the fact that it's such a big team, so many different people involved in this work, but I'm interested in, you know, just from your personal experience, what is a ‘day in the life’ or a ‘week in the life’ for you? You know, what work do you actually get up to?

Caroline: Sure, OK. So on a Monday, I have a clinic, a clinical trial clinic, so patients will come to see me in Edinburgh and to discuss clinical trials, and that's through my research funding. And then in the afternoon, we will have a ward round where we all – there are seven medical oncologists in Edinburgh – and we will talk about all of our patients, so we just share good practice and we go through with our junior doctors

what the issues are, and then if I have a patient of mine on the ward I'll go and see them. And then we have a few meetings on a Monday, actually – for management we have a trial meeting, and we also have a wider consultant meeting where we talk about, you know, new strategies, concerns, changing stuff, it's quite a varied meeting, and it's quite important, that's just once a month.

And Tuesdays I work in Fife, and I have a full day where I see patients coming from nine o'clock in the morning till five at night. And they are usually people who already have a diagnosis of breast cancer, and they're either coming for follow-up, maybe they might be in a clinical trial. But most of them are people who are on chemotherapy, and they're coming to get results of scans, or to assess what problems they're having. So some people do run into problems with bad side effects, and they have to come back and see me and work out what we're going to do to move forward. And there are lots of different drugs in breast cancer, so if someone's scan isn't so good, usually we have a different treatment to talk about them with, and then they will sign the various forms and take away some information.

And over the lunch time we have what's called a multidisciplinary meeting, which is a key thing that we do in oncology. And a multidisciplinary meeting is usually got an oncologist (usually several), a surgeon, a pathologist, and a radiologist. And then actually they've lots, it's quite a good teaching forum, so we often have trainee nurses, or radiographers, or oncologists there too. And that's where the, the idea behind it is to really try and move forward with the patient's plan as quickly as possible, and achieve consensus to make sure all patients are getting the best of evidence-based practice. So anyone who comes to the breast clinic as a new diagnosis of breast cancer will automatically be discussed at that meeting, and we will make a plan: should the person have chemotherapy first? Should they go straight to surgery? Or maybe they've already had their operation, and the oncologist is saying, "right, this person probably needs chemotherapy or maybe needs radiotherapy". And so we try to do that every week so that we can move everybody's journey forward as quickly as possible.

On a Wednesday it's my research day and I look after lots of the junior doctors in oncology, so I tend to meet up with them for their training requirements, see how they're getting on. And, yeah, I have meetings

with my trial team to make sure that they are happy with how all the studies are going, and there's quite a lot of admin to do around that.

On Thursdays I have a new patient clinic, and that's back in Fife. And so that's somebody who's either just been diagnosed, and is about to have chemotherapy before an operation; or they've had an operation and then they need chemo, they'll come and see me then; or they might have been diagnosed with secondary breast cancer and we have to talk about the treatment for that. So those are the three types that come in to that clinic. Then in the afternoon on a Thursday it's quite a lot of admin, catching up with emails. Often I speak to pharmaceutical companies, or do some education with the junior doctors, so that's quite a bit mixed on a Thursday afternoon.

And then on Friday I try to work from home, and I am what's called the Anti-Cancer Therapy Lead for Fife. So I do some management meetings, and have to fill in reports and review any incidents that happened, that sort of thing, so it's, that's a bit more management based. And that's my week.

Daisy: That's quite a busy week.

Caroline: A long answer!

Daisy: A long answer, but a lot in it. So one of the things that you mentioned was Wednesdays is your research day, or where possible it's your research day. So could you talk a little bit about what are you working on, or what have you worked on in the past, in terms of your research?

Caroline: Sure. So I'm the lead clinician for the breast cancer clinical trial team in Edinburgh. And it's quite a big clinical trial team across the UK, and we run a whole portfolio of different clinical trials, and so it's my job to try to work out which trials we want to apply to be part of. And I try to make sure that when one trial opens, we've got another one, hopefully; and when one trial closes, we've got another one hopefully opening soon, to make sure that patients have access to clinical trials throughout their journey. And to do that, I've also got to have quite a lot of discussions with pharma agency, pharma companies, just to try to say, "would you want to be part of this study?" You've got to have quite a lot

of good contacts, because ultimately we want the most exciting studies to come to Edinburgh. And I'm what's called a Principal Investigator, or PI, on a number of those studies. But all my colleagues are PI's on different studies, to make sure it's all shared out. So I will be looking at those, so the recruitment, or the problems with recruitment, maybe setting up the study. So it's lots of different parts of the pathway, because every trial that we apply for, we don't necessarily get selected, so there's a selection process and a meeting for that. And then we have to do quite a lot of training about our trials to the wider team, to the nurses and the research managers. So there's quite a lot of work behind the scenes go on for these things.

Daisy: So, I mean, you obviously find your work, you know, very fulfilling and very interesting. So I'm curious to know how you got here. You know, of all, you know, when you were studying medicine, of all the different specialties you could have picked, why oncology? How did you end up focusing in this way?

Caroline: That's a good question. I think often people fall into specialties because they meet someone who inspires them, or they're in the right place at the right time, if I'm honest, if you don't have a very clear idea in advance of what you might want to do, as most medical students don't. And my first real experience of oncology was as what was called then a Pre-Registration House Officer – or as a Junior House Officer, people normally call it – and that was back in (giving away my age now) 2001. And I had selected my PRHO year because there was oncology in it, just because I was interested. And then I worked for this lady – who still works with us now – but I found her really inspiring, and she has amazing communication skills. And at the time, she had just shaved her head for charity, and what she said was, "I want to see what it's like for my patients to lose their hair". And, you know, it was obviously a big topic of conversation with lots of patients, but I just thought, "wow, that is really amazing! And you're right, how do you know how that feels, unless you do it yourself?"

And – not that I've done it – but I just remember really enjoying that attachment. And we were looking after people with small cell lung cancer, which at the time we were using just chemotherapy, but started to use radiotherapy at the same time, and we were seeing some amazing responses. And I really remember, patients would come for

their next cycle of treatment, and we put up their chest X-ray, and you could see it melting away, and you can see the joy on them and their family's faces. And I just remember thinking, "this is really cool, it's really exciting, it's interesting, it's moving forward". And, but it was really that human element to it that I really liked, of getting to know people.

Daisy: Well you've segued very nicely into what I was going to bring up next, which is talking about the human element. Obviously, we're not going to get into territory where we're going to, you know, breach data protection or anything like that. But are there any patient cases – any particular complaints, diseases, or scenarios – that you've experienced over your career that have really stuck with you? You know, that were quite formative, or you felt were quite significant for you?

Caroline: I'm sure this lady wouldn't mind, but she was a lady I took over when I started my consultant job, and actually I'd looked after her nearly fifteen years before, when she'd first being diagnosed. And she had HER2-positive breast cancer, and it was spread to her liver, and she started on this new drug herceptin. And I think she had quite a sizeable life insurance, or critical illness policy, and she cashed that in, and she spent it all, because she thought she wasn't going to live very long, because that's what she was told. And she's still alive. She's still on herceptin, first line treatment, nearly eighteen years later. She has seen her children leave school; she's seen them get married; she's seen them leave university; and she's now got grandchildren. And every time she comes to clinic, she is, keeps saying, "I'm just so grateful, I'm so grateful, I just wish I hadn't spent all that money". But it's lovely, and that's the power of these amazing new drugs, is that somebody who you'd never have expected to live more than six or twelve months back then, is still here eighteen years later. And what I'd really love to do, is find out why she's one of these 'super responders', and get a bit of her cancer and try to work out why she's responded so much better than anyone else. But it's such a lovely, every time I see her, it's so lovely.

Daisy: So kind of sticking with your, sort of, personal experiences, how has the specialty itself, how has oncology changed over the course of your time working in it, while not getting into, as you said, you know, giving away your age by being too specific with dates? But yeah, have you seen any sort of significant milestones, do you think, or changes?

Caroline: Well I mean, it's unbelievable the difference, compared to, so I started oncology in 2004/2005, and the world has changed immeasurably. Back then, I was looking at my, the book when I was studying for my exams – you know, your membership exams – and it was saying that the average five-year survival for colorectal cancer was zero percent, and actually, even if it's spread to the to the liver, there's still a forty percent ten-year survival. I mean, things have changed enormously, and in breast cancer we've had so many new drugs coming through that have hugely changed the outcome for patients. I remember my first year, I started doing breast cancer when I started training, and the ward was full of young patients, who had, a lot of them had something called spinal cord compression because they had disease in their spine that had pressed on their spinal cord or had disease actually in their spinal cord. And it was causing them to be really quite either paralysed or very immobile. And those patients were on our ward for months and months, with one complication after another.

And around 2000 was when people knew about this protein called HER2, and suddenly a light came on. There's actually a film with, I think, Harry Connick Junior in it about the story of herceptin, which was the drug. And when people found out this protein, suddenly they realised why there was a subset of young patients who seemed to have disease that had a real propensity to spread to the brain and the spinal cord, it was a neurological spread. And we'd known for years of being a syndrome, that you just knew that something was different about those cancers, we just didn't know what it was. And then when people found HER2 – and actually it's a protein we can use a drug against, an antibody – and it has absolutely revolutionised things, and we just don't see those patients anymore. You still get patients with secondary breast cancer which is HER2-positive, but, so many more people are cured now you don't tend to see that nasty burden of disease. And so it's really gratifying to see such rapid change, you know, in fifteen years it's gone from being a really, really nasty type of breast cancer to actually one of the most treatable ones in that quite short time frame.

Daisy: Thank you very much, that's really interesting. So sticking for a moment with the historical side of things, this is where we get into my pipe-dream – that one day may or may not be made real – which is: I would love to set up a museum of medicine which has an object which represents each specialty. So if you had to pick one tool, or one object,

to represent what you do, to put into my imaginary dream museum, what would that object be?

Caroline: I think I would say, it's not something you can see though, but an antibody. Because those have really changed everything for cancer in many, many situations. So it would have to be a drip, that's a bit boring, but it probably would have to be. Of course I'm a medical oncologist, I have to focus on drugs.

Daisy: So we've talked a bit about the past, so I'm interested to get your thoughts on the future and, you know, thinking about the specialty of oncology, you know, what do you picture in ten, twenty, maybe even thirty years' time, being the changes that you will see in how oncology is carried out, and, you know, any innovations, for example?

Caroline: Yeah, I mean innovation has just been so key to moving things forward. I think there's so much improvement in outcomes in cancer. But that's not just because of drugs, it's because of, there's more technical radiotherapy; the surgery is better; the anaesthetists keep people, you know, safer through theatre; the pathologists are better at working out all sorts of different things about a cancer; the radiologists are better; and the scans are better. So all these little things all add up to better outcomes and better care. And I think we will continue to innovate.

I think the biggest challenge is going to be how we fund all of this, because we give something like ten times more treatment than we used to give ten years ago, with only ten percent more staff and resource. And so our hugest challenge right now is, so many cancer types used to have a certain number of different drug options, and often you would just give a small number of treatments and then the patient would have a break, because these drugs are all chemotherapy drugs and they have lots of different side effects, so they're not ones you can just keep on giving and keep on giving. But with the advent of lots of the new targeted drugs, we can keep on giving them until progression. So patients would have just had maybe six or eight cycles of chemotherapy fifteen, ten, fifteen years ago, and they'd have only had two lines of treatment (if you think of your first treatment as a 'line' of treatment). But now people are on treatment continuously, maybe for two to three years for each treatment, and then they'll have maybe seven or eight different options. And so all of that contributes to much better survival, which is

fabulous! But actually, it's hard to staff that, and fund that, and we haven't been very good over the years at doing proper horizon scanning for resource. And the NHS has never been good at thinking, “well, giving more treatment, it's going to be worse in two years’ time, let's get more people in now and train them up”, it’s always reactive rather than proactive, and we have a real challenge. There was actually an article in *The Lancet* just this week about the challenges of delivering anti-cancer therapy in Scotland. And it's really difficult, because we want to give everybody the best treatment as soon as it's approved, but ultimately, we can't magic chemo nurses, consultants, and pharmacists out of nowhere. So that's our really big challenge in terms of moving forward.

One of my other real interests is about the developing world. And actually, when I first wanted to do medicine, I wanted to go and work in Africa. And actually I initially was quite keen on HIV medicine. And I think it was just when I started working in oncology, I realised that I couldn't really fulfil my ambitions of working in Africa as an oncologist. And I went along to a *Médecins Sans Frontières* meeting in London, when I was doing my very first oncology job, and they said, “look, we really need surgeons, and ENT, and ophthalmology, obs and gynae [obstetrics and gynaecology], we need everybody! Apart from a small number of specialties, and this is the list that there's no point applying”, and oncology was top of that list. And at the time I was pretty devastated, but again, it shows you how things move on, because in the last five years I've gone with the Royal College three times to teach in Africa, because it’s now, cancer is now the single most rising problem in the developing world, because of the advances in malaria, HIV, better education. So, but the problem is that the doctors out there have not had nearly as much training in cancer, because it was all in the small print when they were at medical school. It's a bit like me having a ward full of people with malaria, I wouldn't have a clue. So we were out there teaching them about how to manage cancer; identify cancer problems; and try and get patients to the centres. And so I think that'll be the other big challenge for the future, is how we manage oncology in those developing countries, and they've got a lot more challenges than us. But I know that there's really a global oncology movement that's really started over the last five years, and I think the developing world are going to really need us. And I certainly would like to be part of that, moving forward, too.

Daisy: Thank you. So of course you're describing, you know, one of the biggest challenges being around the staffing side of things. So it may be that some of the people who are listening to this podcast are medical students thinking about how to specialise, you know, people thinking about oncology as an option. So I just wondered, is there any thing that you would, any advice that you would give to the next generation of potential oncologists, or anything you would recommend as a way to get themselves in the mindset, or prepare for this path?

Caroline: Well, I think it's a great specialty, because I think few specialties get to know their patients as much as we do. But we also have the exciting science as well. So it brings together two fundamental things that most medical students love, which is patient contact and science. So I think it is a really great specialty. I think getting involved at an early stage is brilliant, because I think it helps people to see that it's not as depressing as people might think. Because I think that's one of our challenges, is that if someone doesn't come to see us, they might just assume it's really depressing, and it's really not. So if anyone is in Edinburgh and they want to come for an attachment, it's me that you would speak to. I look after our junior doctors, and I'm always saying to them, “please come down to clinic, and don't just see the patients on the ward. I want you to see the patients that are out there living a really good life”, because cancer is increasingly becoming such a chronic disease. And the doctors on the wards, and the junior doctors, will inevitably – whatever specialty they’re in – oncology patients could get admitted. And it can seem that, you know, our drugs are pretty nasty, or the radiotherapy causes bad side effects. But I would just reassure everybody, that's only the very small proportion of patients on treatment. We have lots of people out there living really good lives. So come and see us, come and see if it's something that you might be interested in. Doing research projects is really a big part of oncology, so build up your CV. Even the smallest project, it’s quite easy to get a poster at a conference, so just have initiative and confidence, and if you don't submit, you're not going to get it in, but just that poster on a, at a conference on a CV can make a huge difference when it comes to a job interview. But I think there's going to be a huge need for more and more oncologists over the next ten, twenty years. And sadly, we're not going to be out of a job, I don't think I'm going to cure cancer in that time. But it's a really rewarding job, so give it some thought.

Daisy: Thank you so much for joining us, Caroline. This has been fantastic, really interesting, thank you.

Caroline: No problem, thank you for having me.

[musical interlude]

For our case study today, we're going to look at the death from cancer of a famous historical figure. Napoleon Bonaparte, otherwise known as Napoleon the First, was a French military leader and emperor in the early 1800s, and the document which forms the basis of this case study is in the archives of the Royal College of Physicians of Edinburgh.

It is a postmortem report for Napoleon Bonaparte. The report dates from the 6th of May 1821, one day after Napoleon's death. The location of death is given as Longwood House on the remote South Atlantic island of St Helena. Napoleon had been kept at this location since 1815. Napoleon had once been a prominent military and political leader who rose to prominence during the French Revolution and afterwards during the Revolutionary Wars. But the last few years of his life were spent in isolation, exiled to St Helena by a British, Dutch and Prussian coalition.

Longwood House was described as damp and unhealthy, and Napoleon’s attendants complained of colds, coughs, damp floors and poor quality food. *The Times* newspaper alleged that the British government had chosen such an unpleasant home for Napoleon to try and hasten his death. In his final year, as Napoleon's health declined and he began showing symptoms of depression, for his last two months he was confined to his bed.

After his death on the 5th of May his autopsy was carried out. For reasons that I'm not clear on, this involved cutting off Napoleon’s penis. A death mask was also created – although copies of that mask survive at a number of different museums, the location of the original mask is unknown.

The autopsy report, as these type of documents tend to be, was clinical and certainly not flattering to the dead emperor. The first comment in the report describes how fat Bonaparte’s body appeared, with an inch and a half of fat discovered over his abdomen. But that's not what killed him.

The condition of his stomach is described – “The internal surface of the stomach to nearly its whole extent was a mass of cancerous disease, or [tumourous] portions advancing to cancer”. As if that wasn't enough, it was also discovered that he had a stomach ulcer big enough “to allow the passage of the little finger”.

[musical interlude]

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