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**The Rise and
Rise of Alternative
Medicine**

There are more
things in Obstetrics
and Gynaecology,
Horatio, than are
dreamt of in your
Philosophy – Part II

What is on for January
for the Health Promotion and
Disease prevention Directorate?

Healing & Disease Reversal
THE SERIES

Meeting David Bonnici



“Stay Hungry. Stay Foolish”

This year we have seen a number of deaths which have marked people from all walks of life. To name a few I am including Peter Falk, actor, best known for his role as Lieutenant Columbo in the television series Columbo (I grew up watching it on Sunday nights!); Elizabeth Taylor, actress; Muammar al-Qaddafi, Libyan Military Ruler; Amy Winehouse singer and songwriter; Steve Jobs, co-founder of Apple; Marco Simoncelli, Italian Motorcycle racer; and Baruch S. Blumberg, American research physician whose discovery of an antigen that provokes antibody response against hepatitis B led to the development by other researchers of a successful vaccine against the disease (he shared the Nobel Prize in Physiology or Medicine in 1976 with D. Carleton Gajdusek for their work on the origins and spread of infectious viral diseases). Even the age of the demises spanned substantially from 24 years (Simoncelli) to 85 years (Blumberg).

Each one of these people has marked humanity in its own way. In essence, all made us dream (maybe one made us have nightmares). Be it the silver screen, radio, stage, racing tracks, lab or computer... you name it and there it is... each one of us modelling his or her life's expectations, whether intentionally or not, according to the perceived projections of these icons of humanity...

However one icon, so to say, which has left an impact on me is Steve Jobs. Not only because many of my friends showcased or spoke about iPhones or iPads or iClouds whilst I had an inferior brand (and believe you me they seemed to enjoy drumming into my head the fact that Apple was by far superior to any other brand). But he left an impact on me mainly because of his famous speech delivered in 2005 at Stanford University. I first heard this speech when I was studying management and later when I attended a course on public speaking. Through his speech, which I recommend everyone to watch on YouTube, he unveils his childhood, work endeavours and reflections of

death, through three storytellings. Back then, the latter thoughts were obviously inspired by his recent surgery for pancreatic cancer.

Throughout his personal experiences he was telling the students in front of him to always try and turn difficulties into opportunities. For him, some difficulties inadvertently indeed turned into opportunities later on in life. Such as when he dropped out of his course at Reed College and decided to take a calligraphy class simply because he enjoyed doing it. He learned about serif and sans serif typefaces, about varying the amount of space between different letter combinations, etc. He admitted that none of this had any practical application in his life. Or so he thought. However 10 years later, when they were designing the first Mac, he used it to design the first computer



with a unique typography ie multiple typefaces, proportionally spaced fonts, etc. If he had never dropped out of that course in college, he would have never attended that calligraphy class, and personal computers might not have the typography as we know it today.


His key message was to always love what one does. This should be the driving force in everything one does. And if one stops and thinks about this, it is indeed a very simple message. Yet, at times, we tend to forget this and we

need a powerful figure to remind us these very basics of life.

Jobs also acknowledged that at times, life events forge a better future or a better us without us even realizing it. It is only after viewing it as a hind sight that one realizes this. As Jobs worded it, his firing from Apple "... was awful-tasting medicine, but I guess the patient needed it."

After watching his speech for the umpteenth time, I pondered on our profession. Many times our ideals seem to be sacrificable to money and power. Maybe not at the beginning, since the Hippocratic Oath would still be reverberating through the corridors of our brain, but then slowly it would seem to die a natural death. Maybe not for all of us, but for many of us.

At this point I would like to suggest that you read 'Doctor, Doctor – Where are thou? Medics in Movies and Television' penned by film critic Justin Camilleri for us some years ago, accessible at <http://www.thesynapse.net/articles/viewarticle.asp?artid=9968>.

And with Jobs advocating us to remain hungry, we at The Synapse are always striving to find the best diet for our members. In fact we will soon be launching a new version of our online portal. The aim is to improve integration of services and increase networking – this will include the addition of a forum and facilities that promote social networking between members. We will also be integrating eLearning with the portal. In addition, the new portal will include new sections such as the provision of better facilities for promotion of job vacancies as well as sale / exchange of any items between members. All is aimed to promote a healthy interaction between members of the various medical professions. If you require more information, simply send an email to editor@thesynapse.net 

Ian C Ellul

Ian C Ellul



Professor Maurice Cauchi MD MSc PhD DPH FRCPA FRCPath was Professor of Pathology and Director of Pathology in Malta. He has published several monographs, including Health, Bioethics and the Law. For his services to the Maltese community in Australia he was made Member of the Order of Australia (AM), and given the Medalja għall-Qadi tar-Repubblika by the Maltese Government.



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COVER: Muscari Comosum
(*Basal il-Hniezer; Tassel Grape Hyacinth*)
The plant which is indigenous to the Maltese islands is a perennial bulbous plant. It has a tuft of bright blue to violet-blue sterile flowers above brownish-green fertile flowers, which open from dark blue buds. It flowers between March and May.

Medicinal uses:

The bulb is a diuretic. The bulb is rich in mucilage and can be crushed then applied as a poultice to reddened skin.

Photography: Guido Bonett ARPS AMPS

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Maximising ophthalmic theatre time – Part II

Discussion

Currently the allocated theatre time for this particular firm is that of five and a half hours per week. An extra average of four hours per week are gained by using theatre time on weekends or public holidays. From this in-house audit an average of 92% of the available theatre time, during the months under study, was used while the remaining 8% was 'un-utilised'. In interpreting the latter percentage one has to take into consideration any last minute cancellations which resulted in wasted theatre time. In the absence of Pre-operative Assessment Clinics (POAC) held 1 to 2 weeks ahead of the scheduled date of surgery we still have to pre-assess our patients due for surgery under local anaesthesia on the day of the surgery. Since most patients would have been waiting for several years for their eye surgery, both their ocular status and general health may have altered making them unsuitable for surgery. Therefore the setting up of Pre-Operative Assessment Clinics would significantly improve

our efficiency and safety. Patients would also be psychologically better prepared for surgery knowing that all the necessary tests have already been performed on a previous date and would not have to endure a last minute test to verify their fitness for surgery. The POAC would also create a pool of patients who are already prepared and tested, whom we could call on the day to fill up any possible last minute cancellations.

According to the Bevan report,^{1,2} the UK's NHS Management executive recommends 90% utilisation of theatre time, which compares reasonably well with the percentage utilisation of theatre time quoted in our study. However one has to note that for the sake of this study we have allocated a fixed amount of time for any particular procedure to be completed. Therefore it was assumed that these procedures were all routine and uncomplicated, all surgeons in this firm were of equal speed and all patients were fully co-operative (referring to local anaesthesia patients). It was also

assumed that there was never any delay in bringing patients from the ward and that on every session there was a full compliment of nursing staff in the operating theatre. An assumption has also been made that no teaching of junior doctors was carried out. Therefore if all these factors are taken into consideration, one immediately realizes that the theatre time efficiency is actually much higher.

In this study the duration between operations i.e. the turnover time has been estimated as being 2 minutes. It often means that the doctor or nurse has to wheel the patient out of theatre before getting the next patient in. Better use of health assistants or other auxiliary staff may lead to a faster turnover leading to better use of the limited theatre time.

In order to maximize usage of theatre time, our patients are encouraged to have their cataract surgery under local anaesthesia (LA) unless patients have a communication deficit due to their mental status, language barrier or hearing deficit.

Having eye surgery under general anaesthesia (GA) increases the onus on the anaesthetic department, minimally increases the anaesthetic risk on patients and leads to more wastage of precious theatre time. Simple mathematics confirm that performing cataract surgery under LA will double the surgical output when compared to being carried out under GA. In fact it is a policy of this firm to group all patients requiring surgery under GA on one operating theatre day per month and all other lists are dedicated for LA only, in order to improve the efficiency as much as possible. Nowadays the LA method of choice is the SubTenon technique, in which a blunt curved cannula is used without the need of any needles. Therefore the LA is very well-tolerated, safe, effective and reproducible.³

In the quest to decrease the cataract waiting list the authorities are all the time endeavouring to increase the number of cataract surgeries. In fact this study shows that from the official allocated hours, 64% is dedicated to cataract surgery alone with the rest allocated to other types of ophthalmic interventions. While a patient with a cataract can wait, without any significant detriment on the eventual surgical outcome, the same cannot be said for patients requiring a retinal detachment operation or glaucoma surgery. Patients who suffer from the latter conditions take priority on cataract patients. In fact almost 7% of theatre time was used for glaucoma-related surgery. 22 corneal transplants were also carried out by this firm in 2009. The latter were all performed before or after the allocated theatre time in order not to negatively impinge on the cataract waiting list. Squint surgeries are usually also grouped in separate sessions in order to streamline the surgical output.

Regular use of topical local anaesthesia instead of sub-Tenon's infiltration of anaesthesia can hasten duration of cataract surgery and allows patient to recover visual acuity rapidly after surgery.⁴ However topical anaesthesia is associated with more discomfort during surgery than sub-Tenon's anaesthesia. Therefore currently, the latter remains the

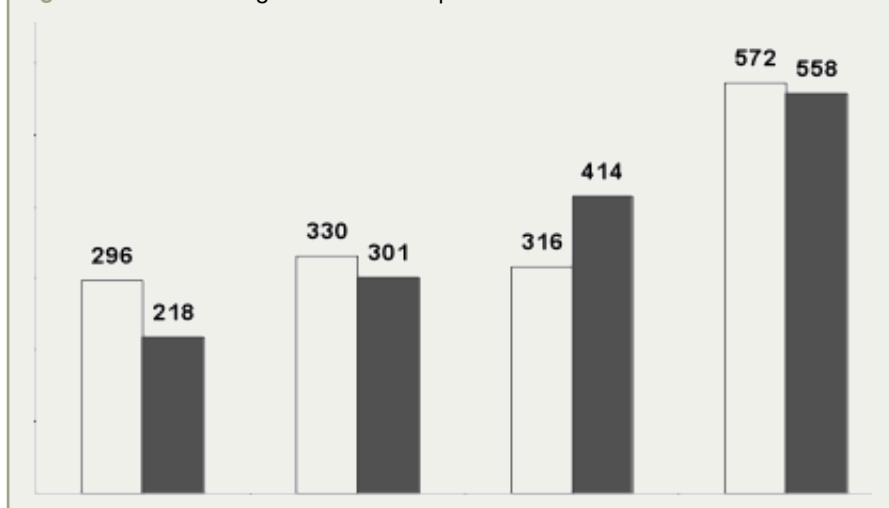
preferred choice for this firm.⁵

Most cataract patients have bilateral disease and this would imply that if the waiting time for a cataract procedure is 4 years then they have to wait a minimum of 8 years till completion. Therefore the possibility of simultaneous bilateral cataract surgery (SBCS) is a notion one should consider seriously even though, as evidenced in a consultation forum⁶ involving international experts in 1997, SBCS remains controversial. Several recent reports highlight the safety factor of SBCS^{7,8,9} due to the advent of sutureless cataract surgery. The potential advantages of SBCS are definitely not insignificant. SBCS reduces the time spent by patients and medical staff in the overall process. Some advantages include performing one surgical event which is shorter than two put together, fewer postoperative visits, reduced administrative paperwork, less temporary disability and sick leave and reduced reliance on the support of family and friends. In this regard, the true economic saving of SBCS go far beyond one can imagine. Healthcare professionals often underestimate the emotional stress or physical hardship that surgery and postoperative period entail for certain patients. For these individuals eliminating a second intervention may be desirable. In his editorial of the British Journal of Ophthalmology¹⁰, Chang D F concludes that 'in any healthcare system where limited resources may impose rationing

or lengthy delays in elective surgery, SBCS might be the best way to safely extend the benefits of cataract surgery to as many eyes as possible'. Despite all this, 'in analysing the downside to SBCS, the most important complications to consider would be those occurring during the early postoperative period. Some, such as endophthalmitis, are vision threatening and others, such as refractive surprise, are not. Some, such as moderate corneal oedema or toxic anterior segment syndrome, are temporary. All of these complications could have altered the timing or outcome of the second operation.'¹⁰

In 2009 this firm carried out 572 cataract procedures which means an 81% increase from the previous year. Only 48% (275) were performed during the allocated theatre time while 52% (297) were carried out during weekends and public holidays. The usage of theatre time during weekends is, in agreement with the anaesthetic department, dedicated solely to LA patients except in case of emergency. Therefore this extra theatre time is mainly dedicated to cataract surgeries which amounted to 85% of the utilised theatre time. The reason why the percentage utilization of extra theatre time increases to 94.95% (compared to 89.25% in the allocated hours), is due to the fact that lists on weekends/public holidays run much smoother, primarily driven by the presence of a full compliment of the nursing staff. This is in stark contrast to weekdays when

Figure 1: Cataract surgeries listed and performed between 2006 and 2009



nurses are stretched to the limit.

The drastic increase in the number of cataract surgeries performed in 2009 was due to the fact that allocated theatre time was extended on Mondays by 2 hours and longer lists on weekends/public holidays were possible. Furthermore, in 2008 there was a drop in the number of cataract surgery performed, possibly due to the migration to Mater Dei Hospital.

Although 572 cataract operations were carried out in 2009, 558 patients were listed in the same period for the same procedure. Therefore the benevolent action to work on weekends did not lead to a decrease in the waiting list, but merely was just enough to cope with the current demand. In fact 2009 was the first year that the supply was equivalent to demand while in the past we were listing a higher number of patients when compared to surgeries. From the sample months that were analysed it results that in the allocated theatre time only 6 cataract operations were performed each week while 12 were carried out on every list in the extra theatre time. The latter was possible since only LA patients were carried out on weekends which streamlined the output considerably.

Mr Mercieca's current waiting list is around 1700 patients for cataract surgery. Thus if his firm is allowed an extra session of 5 hours per week which would be dedicated solely to LA cataract operations, an average of 10 extra cataract operations would be performed leading to a decrease in the waiting list by around 500 a year. This would be correct if we assume that the demand for cataract surgery remains the same when in fact we expect the opposite as seen in Figure 1. Due to the ever increasing aging population and increasing patients' trust in the success of this life-enhancing surgery, the demand for cataract surgery is bound to continue to increase. This could mean that it may take us at least five years to bring the waiting list to acceptable levels.

Conclusions

In order to maximise the usage of our current allocated and extra theatre time, the authors suggest:



In fact 2009 was the first year that the supply was equivalent to demand while in the past we were listing a higher number of patients when compared to surgeries

1. The setting up of Pre-Operative Assessment Clinics in order to streamline our surgical output and reduce to a minimum the theatre time wastage.
2. Encourage more patients to have their eye surgery under local anaesthesia
3. Proper help from auxiliary nursing staff in transporting patients in and out of operating theatre and even to and from Ophthalmic Ward.
4. Consider the possibility of Simultaneous Bilateral Cataract Surgery as a way to economise on our health resources

However it is quite obvious that maximising on our theatre time would never address the problem of our unacceptably long waiting lists. From our study it transpires that the only way to significantly positively impact on the waiting list for cataract surgery is to have an additional operating theatre in parallel with our current set-up dedicated solely to cataract surgery under local anaesthesia, ideally led by one or two ophthalmic surgeons.

After all the reason why nowadays we have such an unacceptable long waiting list is entirely due to the fact that cataract surgical results have improved tremendously. This has led to an exponential increase in the demand for the surgery which has not been met by the supply, leaving a lot of patients waiting too long a time for this quality of life enhancing-surgery.

In fact 2009 was the first year that the supply was equivalent to demand while in the past we were listing a higher number of patients when compared to surgeries. §

Acknowledgments

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The Rise and Rise of Alternative Medicine

Before scientific medicine appeared on the scene less than 200 years ago, alternative medicine existed side by side with what was considered to be college-certified medical practice. Surgery took a bit longer to become an academic discipline, looked down on by medical doctors and was, for a long time restricted to unqualified barbers.

Since then, with the application of the scientific method, medicine has made, and is still making enormous strides. We do not accept anymore anecdotal evidence. We do not think highly of articles which are not peer reviewed. We are ready to accept criticism and modification of long-held dogma: a typical example of this is the ready acceptance of *H. pylori* as a cause of gastric ulcer rather than the long-held theory of hyperacidity due to vagal stimulation.

No wonder therefore that western medicine looks down on alternative medical methods which many believe relies heavily on the placebo effect, and at worst is seen as pure charlatanism.

Natural therapies have grown and now cover practically every aspect, ranging from the time-hallowed Chinese medicine to more recent modalities, such as Nutritional Medicine, Western Herbal Medicine, Musculo-skeletal Therapy, Massage, Homeopathy, Mind-body medicine, etc.

The degree to which any of these has managed to infiltrate into Western Medicine varies enormously. Acupuncture has become an established technique in a number of hospitals including Mater Dei Hospital and is used by an increasing number of clinicians. Referrals to other practitioners such as chiropractors and osteopaths is becoming more frequent, a process which acknowledges and provides legitimacy to these practitioners.

But the real question is why in recent years the number of patients resorting to natural therapy and other modalities of treatment is on the increase. What makes patients prefer these therapies instead of, or in

addition to medical practice provided by the average general practitioner?

In a liberal society of course, anyone is free to choose one line of treatment rather than another. It is still the case, however, that medical practitioners and medical practice in Malta in particular is held in high esteem. So what are the perceived needs which are not being covered currently by our medical system?

There is no doubt that the degree of success of treatment of medical conditions varies considerably. In particular, the success of treatment of chronic diseases like arthritis, migraine, psychological disorders etc, by their very nature are long-standing and often intractable and resistant to treatment.

There is also, particularly in Malta, a well-known penchant for patients to seek a second opinion, in case the first one was inadequate or even wrong. All these factors may play their part in allowing other disciplines to make headway as an alternative method of treatment.

It is also possible that the long waiting queues in hospital outpatients' departments and clinics tend to be a deterrent. In addition to this, the well-recognized overloading of our doctors may result in less than adequate time spent with the patient. This is something which alternative medicine practitioners are well aware of, in fact they allow plenty of time to ensure that the patient is fully satisfied that their queries have been fully answered.

There is no doubt that the placebo effect has a great degree of significance in all aspects of medicine, whether classical western or alternative medicine. This is not to be ignored, because in many cases involving relatively minor or long-standing disorders, how the patient feels is an important part of dealing with the patient in a holistic manner.

There are, however, certain aspects which one must be on the look-out for. The author believes that it is the duty of healthcare professionals to correct

misconceptions wherever they come from.

One important misconception is that alternative medical treatment can do no harm. This is a fallacy. We all know that many important medicines that we use even today were originally derived from plants, and whether we take these in the form of tablets or as an infusion of the original leaf makes no difference to the potential side-effect profile.

Secondly, vitamins and other products may actually counteract the effects of medication. A typical example is the ingestion of folate tablets by cancer patients on anti-folate regimens.

Perhaps one misconception with potential tragic results to whole populations rather than merely to the individual is the increasing tendency for several alternate medicine practitioners to undermine the value of vaccinations, quoting anecdotal evidence for complications following such procedures. It is particularly important to emphasize that, while parents have every right to object to their child being vaccinated, the result of following such an advice by the general public would lead to reduction in 'herd immunity' with disastrous epidemics by diseases which have been under control for several generations.

The author believes that healthcare professionals need to be on constant watch for new trends evolving in alternative medicines. At the very least we should be aware what alternative medications are being used, to ensure that there is no danger of drug interactions or significant side-effects.

Perhaps it is also important to ask ourselves why patients are voting with their feet and requesting services which are not being provided by medical practitioners. It may not be within our powers to satisfy everybody, but it is in our interest to keep up-to-date with developments in the medical field, however peripheral we may think they happen to be.

There are more things in Obstetrics and Gynaecology, Horatio, than are dreamt of in your Philosophy – Part II

Work should be attributed to the Pediatrics Department, Mater Dei Hospital, Tal-Qroqq, Malta and the Faculty of Arts, University of Malta

VICTOR GRECH
CLARE THAKE-VASSALLO
IVAN CALLUS

Abstract

This paper will review contemporary advances in fertility and sterility and future prospects for the treatment of such conditions.

Treatment options

New sciences and technologies can have unintended consequences, and certain possibilities relating to infertility and its management are quasi-science-fictional, raising awkward ethical issues. For example, the administration of drugs to induce ovulation is now routine, while surgery to reopen blocked Fallopian tubes is also possible. In vitro fertilization (IVF) in which eggs are removed from a woman, fertilised and then placed in the woman's uterus, bypassing the Fallopian tubes, is now routine as well, and babies produced in this way are popularly known as test-tube babies. Gamete intrafallopian transfer (GIFT) involves the harvesting of ova from the woman that are then placed in one of the Fallopian tubes along with the partner's sperm, allowing fertilization to take place inside the woman's body. Zygote intrafallopian transfer (ZIFT) is slightly different in that the ovum is fertilised externally (as in IVF) and then placed in the woman's Fallopian tubes rather than the uterus. Ovum donation from another woman, who may or may not be related, in combination with IVF, GIFT or ZIFT is also possible if a woman's own ova are unusable or if she has a heritable genetic condition which she does not want to run the risk of passing on to her offspring.

Intracytoplasmic sperm injection (ICSI) is a revolutionary process in which a single sperm is injected directly into a harvested ovum, and the zygote is then implanted using

IVF techniques. ICSI has completely reversed the approach to male infertility with very few cases of male infertility remaining untreatable. Even men who can only produce few sperm that are poorly twitching and completely morphologically abnormal can avail themselves of this technique to ensure fertilization and pregnancy. Success rates for this procedure are comparable to IVF in men with normal sperm counts. In the few cases where even ICSI is not possible, insemination with donor sperm remains a possibility. If a woman is completely unable to gestate, it is possible for a surrogate mother to carry a baby to term on a couple's behalf.¹

Even more extraordinary scenarios can be contemplated. For example, while posthumous births are common, with the father of the child dying after conception, posthumous reproduction is now also feasible, extending fertility literally beyond the grave. This has been made possible by sperm cryopreservation, a technique that has many applications such as the storage of undamaged sperm from men prior to undergoing radio- or chemotherapy for malignancy, should they wish to have children in the future, with the possibility of using such sperm even if the disease is fatal.² Moreover, it is also possible to harvest sperm from freshly deceased individuals.³ Cryopreservation has recently also been applied to ovaries and to ova, and with in-vitro fertilization and host mothering, it is theoretically possible to conceive and give birth to a child who has no living biological parents.⁴ These techniques raise not only ethical quandaries, but also issues of legitimacy and inheritance, while the economic and psychological burdens on a child who is

the product of posthumous reproduction remain uncertain.⁵

Even more fantastically, recent research has shown that mammalian testicular tissue, for instance, from monkeys, goats and pigs, can be grafted onto mice with the production of viable sperm identical to that which would be produced by the donor species. In theory, human testicular tissue grafted on to mice would also produce sperm. This technique could benefit prepubescent boys undergoing treatment for cancer that would render them sterile. Such tissue would rapidly mature in response to the host animal's androgenic hormones and the sperm produced could theoretically enable a boy to become a father before he reaches puberty.⁶ It is worth noting at this point that many science-fiction stories have plumbed equally fantastic scenarios and the fictional cautionary encyclical by Pope Alexander VII set in the future year 2043 with regard to actualities that, for example, include the male production of sperm that is not of the individual himself, or the carrying to term of fetuses that are bizarrely and capriciously manipulated in-utero, in Greg Bear's *Slant* (1997), ends with 'a warning that sounds like a curse: As you sow, so shall you reap!' an admonition that we should consider the consequences of our action.⁷

Issues

More urgent problems raised by infertility treatments include the tendency for such procedures to yield premature babies,⁸ especially in association with multiple births, particularly when three or more embryos are implanted after IVF or ICSI, or after multi-ovulation following ovarian chemical hyperstimulation during artificial or intrauterine insemination,

as complete control over numbers of released ova following such ovarian stimulation is not possible.⁹ Such babies are far more likely to suffer from medical complications that bear significant morbidity and mortality, with high financial costs to society. For example, mortality rises from 5% among infants born at 31 weeks of gestation to 56% at 24 weeks of gestation.¹⁰ This has ethical implications in the allocation of very finite resources in modern health care systems, especially when the treatment of such infants may result in significant, long-term or permanent morbidity with a poor quality of life.¹¹

Such babies are also more prone to congenital defects¹² and genetic/chromosomal anomalies,¹³ raising additional ethical issues. The frequency of multiple births in this situation is best controlled by implanting only one or two embryos, and this has become formal legislation in Sweden since 2003.¹⁴ Ironically and paradoxically, a large number of multiple births will result in the very premature delivery of tiny babies, possibly under 1kg in birth weight, that are extremely small even for their gestational age, and the selective abortion of several of these babies may have to be carried out in utero in order to increase the chance of the remaining fetus/es being carried closer to term, a termination that falls within the parameters of abortion legislation and that is paradoxically carried out as part of the treatment of infertility.¹⁵

Moreover, these advanced assisted reproduction techniques frequently result in the creation of excess (three or more) embryos. Such supernumerary embryos are initially cryopreserved and if not used by the couple, are later discarded or used for scientific investigation such as stem cell research.¹⁶ While some religions, such as Catholicism, take the extreme view of frowning on almost all fertility treatments, many others would argue that this is equivalent to an abortion and at best, a waste of potential life.¹⁷

Even more worryingly, in species' survival terms, are scientists' concerns that males born by ICSI may inherit their fathers' infertility problems? It

has been estimated that even if only half of infertile men were to use ICSI to father children, then the incidence of significant male infertility could double in developed countries within seven generations, a truly science-fictional prospect.¹⁸ IVF is now so commonplace that it is also being used to boost the numbers of endangered species, such as pandas in China, a truly ironic situation stemming from a country wherein the populace is strictly schooled to a one-family, one-child concept.¹⁹

Prospects and possibilities

Most of the above scenarios and extrapolations are ably summarised by Baker in *Sex in the Future* (1999), who prophesies that

[d]uring the first half of the twenty-first century, the divorce of sex from reproduction – which is currently nisi – is expected to become absolute. The result will be [...] an ever-burgeoning range of reproductive choices. The latter will be as varied as the menu of a good restaurant [...]. At first, only the infertile will benefit from the full menu, but there will no stemming the demand for equality from the fertile [...] should a couple use sperm and eggs to reproduce? [...] freshly collected or banked? Or [...] manufactured gametes, derived from cell lines they banked at puberty? [...] with somebody they know? [...] Or [...] purchase the gametes of someone famous – or even dead? [...] or parent a clone? Should they reproduce with somebody of the same sex as themselves or of the opposite sex? [...] should they commission a surrogate? And when should they have their first child – in their teens, or in their twenties, thirties, forties, fifties – or even sixties? The range of choices will be almost endless.²⁰

Conclusion

These options, along with definitive identification of the father of any child by simple genetic testing, may yet produce a social revolution, such as the decline of the family in favour of single parenthood, the complete

separation of sex from reproduction, and a plethora of reproductive options. It should be noted that such a social revolution was prefigured in Clarke's *Childhood's End* (1953) for exactly the same reasons: paternal identification and totally reliable contraception.²¹ Baker claims that future techniques will remove all barriers to fertility, and even individuals without gonads will be able to procreate.

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ALBERT CILIA-VINCENTI

THE SERIES

Healing & Disease Reversal

This series reviews Dean Ornish's evidence-based claims of healing & disease reversal by dietary and lifestyle changes. He is a California University Professor of Medicine in San Francisco. This instalment discusses health benefits of various foods.

The following lists a few examples of the powerful health benefits various foods may bring.

FRUITS

Apples: Their pectin may lower blood cholesterol and help stabilise blood sugar. May also help prevent lung disease, especially in smokers.

Bananas: One of best sources of potassium, which maintains normal blood pressure and heart function. One banana contains around 470mg of potassium and only one milligram of sodium – a banana a day may help prevent high blood pressure and protect against atherosclerosis. Effectiveness of potassium-rich foods in lowering blood pressure has been demonstrated by a number of studies. Men who ate diets rich in potassium, magnesium and fibre, had substantially reduced risk of stroke.

Blueberries: They contain phytochemicals (anthocyanins) that may improve memory and, like **cranberries**, may reduce risk of urinary tract infection by preventing *Escherichia coli* from sticking to the bladder wall.

Grapes, including raisin and wine (in moderation), contain antioxidant polyphenols that help prevent coronary heart disease.

Mangoes: Among the best sources of cancer-fighting carotenoids, but also rich in antioxidant vitamins C and E. One mango contains 7 grams of soluble fibre, which helps lower blood cholesterol.

Oranges: Just one orange supplies 116 percent of daily value for vitamin C, the body's primary water-soluble antioxidant, helping prevent free-radical damage to DNA and cancer-promoting mutations. A good supply of vitamin C is associated with a reduced risk of bowel cancer.

Pomegranates: Their juice is loaded with phytochemicals that may prevent, and even reverse, coronary

heart disease. May also help prevent prostate cancer by reducing DNA damage.

Strawberries: Filled with phytochemicals that reduce risk of diabetes and circulatory problems, and contain phenols that may lower risk of cancer and heart disease.

Tomatoes: Tomato sauce and paste, are rich in lycopene, a powerful antioxidant which may help reduce risk of coronary heart disease, breast, lung and prostate cancer. Cooking tomatoes helps activate the lycopene. They also contain vitamins A, C and E, and potassium.

Watermelon: Contains even more lycopene than tomatoes.

VEGETABLES

Artichokes: Contain silymarin, an antioxidant that helps prevent skin cancer, plus fibre to help control blood cholesterol.

Bell peppers: especially red ones, may boost immunity, and are an excellent source of vitamin C (three times as much as oranges) and of beta-carotene.

Bok choy: (Chinese cabbage): Contains brassinin (may help prevent breast tumours), plus indoles and isothiocyanins which lower oestrogen levels.

Broccoli: High in beta-carotene, fibre and phytochemicals that may detoxify cancer-causing substances. One cup of broccoli contains more vitamin C than one orange.

Carrots: Excellent source of antioxidant compounds and the richest vegetable source of the pro-vitamin A carotenes, which help protect against cardiovascular disease and cancer, and also promote good vision.

Chili peppers: Rich in capsaicin (what makes them hot) which may suppress appetite and help weight loss – possibly also by increasing metabolism. Also contain antioxidants

such as vitamins A and C.

Kale: Contains lutein, an antioxidant that protects against macular degeneration, a leading cause of blindness, and cataracts. Also rich in beta-carotene, vitamins C and E, as well as folate (helps prevent heart disease and birth defects), calcium and magnesium, and some omega-3 fatty acids.

Onions: Rich in quercetin, one of the most powerful flavonoids (plant antioxidants) and may help protect against cancer.

Spinach: Loaded with iron, folate, and two phytochemicals, lutein and beta-carotene, that help prevent macular degeneration. One cup of spinach contains only 40 calories and no fat.

Swiss chard: Contains lutein and magnesium, the latter helps keep nerve and muscle cells healthy.

LEGUMES

Beans, peas, lentils: High in soluble fibre and folic acid, which help lower blood cholesterol and homocysteine levels, reducing risk of heart disease. Also contain protein.

NUTS

Walnuts, almonds, hazelnuts: Good source of vitamin E, antioxidants, protein and monounsaturated fat, which carries lower risk of cardiovascular disease. They are also an excellent source of magnesium, fibre, B vitamins and vitamin E. They are high in monounsaturated fat (and calories), so portion size needs to be watched.

OMEGA-3 FATTY ACIDS RICH FOODS

Cold-water seafood (salmon, mackerel, herring, bluefish, trout, sardines, albacore tuna);

Dark green leafy vegetables (kale, collard greens);

Canola (rapeseed), soybean, flaxseed, walnut oils:

Daily consumption of omega-3 fatty acids may dramatically reduce incidence of sudden cardiac death, reduce triglycerides, lower blood pressure and decrease inflammation, helping arthritis and lupus. When given to pregnant and lactating mothers, they

continued on page 21

A passion for movement

If most people live sedentary lives, David Bonnici certainly does not. Leading the relatively quiet life of a pharmacist by day, he transforms after hours to become an athletic personality who manages to win his own feats, quietly so. Speaking to this 30-year-old man provides an inkling of the hurdles one can overcome, with the right frame of mind.

I started trekking some six years ago. It began quite perchance through a doctor who had done the Kilimanjaro Challenge and fascinated me by what she described. When I 'enrolled' to take on the Kilimanjaro Challenge with the second group, I had never actually travelled before. For my first trip, I went to London to buy my trekking gear. My second trip provided a first mountain taster on the Etna in Sicily, a mountain I have come to love. Kilimanjaro proved to be a wonderful first experience. Prior to leaving we had our first part of the challenge to deal with however – fundraising for a clinic in the Ethiopian village of Bulbula. It was hard but we managed to raise a considerably sum.”

Fundraising had seemed hard, but in comparison, the physical challenge was authentically strenuous. “The trek itself started out on jungle terrain, vervet monkeys and all. Slowly we

met less vegetation and eventually temperatures dropped dramatically so we had to wrap up considerably at night when our tents would get covered in frost. Our arrival at the peak was pretty exciting, with very cold but exceptional weather.”

By the end of it, David Bonnici was well and truly hooked, and thereafter began his personal resolve to scale all mountains, where possible. He joined a small group of trekking enthusiasts and scaled the Etna (yet again), the Toubkal, the Imja Tse, the Elbrus, Mont Blanc ... “Each mountain brings along its own particular challenge. For instance, the Imja Tse in the Himalayas was the closest I got to the Everest, although we did stop at the Everest Base Camp. This camp is set up annually, every

climbing season, atop a glacier, so you can actually hear the ice crack every so often and know that distant rumbling indicates yet another avalanche somewhere close by.”

The Toubkal was an especially tough experience which taught David that one can never know too much. “One day, we ventured out without a guide, relying on the knowledge acquired from a couple of recommended guide books. We had two mules with their owners tagging along and transporting provisions. The mules had to be led along an alternative and safer passage, and we trekked on confidently believing we would meet them shortly afterwards at the next camp.” However, unbeknown to them, part of the route they had meant to trek had collapsed shortly before, and so the team members found themselves blocked. Suddenly it was night and they





realised they had to camp in a sub-zero temperature. Their sleeping bags were on the mules and they only had a couple of extra changes of clothing, plastic garbage bags and some extra light jackets. “We put on everything we had, including the plastic bags, huddled together and hoped for the best. We were lucky no storm crept up on us. Needless to say, we scarcely slept and resumed trekking with first light, arriving at camp famished, exhausted and stiff. To compensate, the summit was exceptional with lovely weather which allowed us to really enjoy the experience.”

The coldest peak experienced was definitely the Elbrus, a free-standing peak in Russia, the highest in Europe, perennially covered in snow. David joined a Canadian team and whilst the expedition started out with fine weather, day two presented them with a blizzard and by day three, David’s stomach was playing up and causing him severe dehydration.

Another mount, the Mont Blanc is associated with disappointment since shortly before reaching its summit, David passed out due to lack of sleep and proper nutrition. “The guide would not risk having me with the expedition as his responsibility was ensuring everybody was well and safe.

He was afraid I could pass out again and compromise the others’ safety. Needless to say, I was pretty put out, having to walk back down to camp when I was so very close to the summit itself.”

The Imja Tse, at an altitude of 6200m led him to experience Asia, its food, its people, and provided a first taster of climbing ice. Led by one of the most brilliant guides ever, a Scottish 60-year-old called Victor Saunders, David along with his Maltese companions, managed to trudge along a staggered climb that lasted 19 days but led them to the peak and through the Everest Base Camp.

Feeling quite exhausted after all these accounts of strenuous treks and climbs, I ask about the here and now. David did not surprise me – he has now taken up long-distance running as he wanted a break from the mountain experience, even whilst he is pondering a solo trek or climb in 2012. “Long-distance running is, for me, a low-cost, travel-free alternative to the trekking experience which still provides me the type of adrenaline I need to boost my spirit.” But after a long day at the pharmacy, after the long-distance run ... what does he do to relax? This time, I was really surprised when I discovered David is an Argentine Tango dancer,

yet another activity that calls for movement, movement and yet more movement.

“I only started Tango dancing three years ago. In Argentine Tango you need to learn the proper technique, but then the technique is universal and this allows you to dance with every woman who studied and practiced Argentine Tango.” Not being one to take half-measures, he also attends regularly international tango dancing events that brings together Argentine Tango enthusiasts from all over Europe. He has attended several tango festivals and marathons across Europe, namely Palermo, London, Cagliari, Rome, the Netherlands and Brussels.

“We dance all day, until the early hours of morning. Why tango? From a young age I was always fascinated with dance and music. When I was younger I was a Break Dancer, but that genre is not the kind you can do all your life. Argentine Tango is different, its music was born in the 1930s and dance ballads are about Argentine lifestyle, simple things, daily happenings, emotions. It is very intriguing. My only problem now is that when I think of Argentina I think of the Andes and Tango. They are two valid reasons for visiting one day.” S

What is on for October for the Health Promotion & Disease prevention Directorate?

Cardiovascular disease accounts for 40% of all deaths each year, the biggest killer in Malta and most other developed countries. However there is a lot which can be done to prevent this. Looking at risk factors will help us determine how we can control them. There are two main categories of risk factors;

Uncontrollable risk factors which include:

- Family history of heart disease (especially with onset before age 55)
- Diabetes mellitus
- Age
- Gender

Controllable risk factors which include:

- Tobacco
- Being overweight or obese
- Hypertension
- Dyslipidemias (specifically, high LDL cholesterol, low HDL cholesterol and high triglycerides)

- Stressful lifestyle
 - Sedentary lifestyle (physical inactivity)
 - Diabetes
- Primary and secondary preventive measures will help reduce cardiovascular events and increase the overall health of the patient population.


Primary and secondary preventive measures include:

- Promote a healthy diet
- Improve cholesterol levels
- Exercise
- Control diabetes
- Control hypertension
- Control weight
- Manage stress
- Quit smoking

As a health practitioner each one of us has the obligation to encourage primary prevention measures with our patients. Screening is also an important way to prevent

cardiovascular disease. This means checking patients who come to your clinic for hypertension, dyslipidemias and diabetes. Pharmacists can do a lot for their patients too by encouraging them to get tested.

The Health Promotion and Disease Prevention Directorate raises awareness about the importance of following a healthy lifestyle and provides assistance for weight management and smoking cessation. The directorate in collaboration with the Primary Care Department also goes out in the community and workplaces and offers free testing for hypertension and diabetes as a means of early identification and referral for management.

Information material on risk factors is available from the directorate. Call on 23266000 and ask for copies from your clinic or pharmacy. 

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may increase a baby's IQ by six points or more and may also reduce incidence of allergic disease in the offspring. They may also reduce depression, attention-deficit and hyperactivity disorder, and help prevent dementia. May also reduce risk of prostate and breast cancer.

DAIRY PRODUCTS

Eggs: Egg white is a good source of protein, but the yolk is cholesterol-dense. Where heart disease or high cholesterol is a problem, one should consume only the egg white – two egg whites can substitute one egg in most recipes.

Skimmed milk: A significant source of calcium, vitamin B12 and protein. Its protein helps feeling of satiety till next meal.

Yoghurt: May contain live cultures which help prevent common gastrointestinal problems such as constipation and diarrhoea. Its calcium helps bone health.

SOY PRODUCTS

Tofu, soy milk, etc: Rich in phyto-oestrogens which help prevent breast and prostate cancer, and reduce risk of cardiovascular disease. Rich in protein, niacin, folate, calcium, copper, iron, magnesium, manganese, potassium and zinc, and low in saturated fat.

GRAINS

Oats: Contain soluble fibre that may reduce blood cholesterol and blood pressure.


Whole-grain breads, cereals, crackers: These are “good” (complex) carbohydrates because their fibre slows absorption, preventing big blood sugar spikes. Fibre enhances satiation and less calorie consumption – soluble fibre may reduce blood cholesterol, and insoluble fibre prevents constipation and may decrease risk of bowel cancer.

OTHER FOODS

Chocolate: Rich in flavonols and catechins which may improve blood

flow, reduce blood pressure and reduce risk of heart disease. Dark chocolate is better than milk chocolate because of lower sugar and higher flavonol content.

Ginger: Contains gingerol that may lower blood pressure and increase circulation. May also prevent motion and morning sickness and anaesthesia-related nausea. Other compounds in ginger may help ward off migraines and arthritis pain by blocking inflammation-causing prostaglandins.

Black, green, white tea: Contain polyphenols – powerful antioxidants, found more in green and white tea. Contain catechins which may help prevent GI tract cancer by helping prevent DNA damage from carcinogens and by an anti-angiogenic action. May help prevent tooth decay. High content of flavonoids (more in green and white than in black tea) may have many health benefits – have been shown to reduce incidence of coronary heart disease, GI tract cancers and to enhance immune function. 

Imaging Coeliac Disease

Coeliac disease is one of the most common chronic health disorders in western countries. It is also one of the most under-diagnosed. Up until ten years ago, medical schools taught that coeliac disease was relatively rare and only affected about 1 in 2,500 people. It was also thought to be a disease that primarily affected children and young people. Recent studies and advances in diagnosis show that at least 1 in 133 people have coeliac disease, but only 1 in 4,700 is ever diagnosed.

While in the past diarrhoea was considered to be the main feature of coeliac disease, we now know that constipation is almost as common and many individuals have no alteration in bowel habit. Weight loss was also claimed to be a salient symptom of coeliac disease. We now know that only 5% of patients with the disease are underweight, while 39% are overweight and 13% are obese.

The main symptoms of coeliac disease are abdominal pain, iron-deficiency anaemia and a positive faecal occult blood test. At a later stage, lactose intolerance,

osteoporosis, increased fracture risk, miscarriage, low birth weight, lymphoma, seizures, and depression may occur.

Coeliac disease is a chronic autoimmune disorder induced in genetically susceptible individuals after ingestion of gluten proteins, which are found in wheat, rye, barley, and certain other grains.

The small bowel mucosa is primarily affected, resulting in progressive degrees of villous inflammation and destruction with resulting induction of crypt hyperplasia. The destruction begins in the duodenum and over time progresses distally to the ileum. Loss of villi, which absorb fluid, and hypertrophy of crypts, which produce fluid, result in chronic fluid excess in the small bowel lumen.

Access intraluminal fluid and its effects of small bowel wall structure were described around three decades ago on small bowel barium sulphate studies. These include (1) loss of mucosal folds and wall nodularity in the duodenum (Figure 1), (2) dilatation, dilution, slow flow and flocculation of

contrast agent (Figure 2), (3) smooth featureless walls of the duodenum due to villous atrophy and wall oedema (Figure 3) and (4) fold reversal, whereby folds are more prominent in the ileum than in the jejunum (Figure 4). The number of double contrast small bowel barium examinations performed and the skill necessary to interpret their results are both in decline as the technique is both time-consuming and also very uncomfortable for the patient. A small bowel barium study (also called small bowel enteroclysis) requires trans-nasal insertion of a tube into the duodenum followed by pump administration of barium sulphate followed by about 2 litres lactulose solution.

Antibody testing for coeliac disease is both sensitive and also highly specific; it involves testing for anti-tissue transglutaminase and anti-endomysial antibodies. However, antibody tests and also barium small intestinal studies are unlikely to be performed if there is no clinical suspicion for coeliac disease.

Abdominal pain in coeliac disease is a common early complaint that often



Figure 1: Loss of mucosal folds and wall nodularity (arrow) in the duodenum.

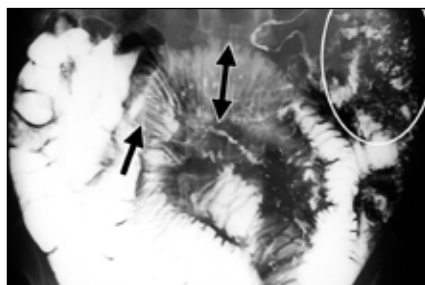


Figure 2: Dilatation (double arrow), dilution (arrow), slow flow and flocculation (inside oval) of contrast agent.

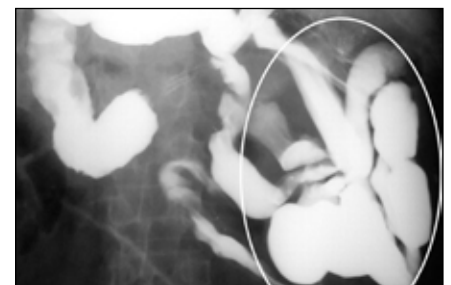


Figure 3: Smooth featureless walls of the duodenum (in oval).

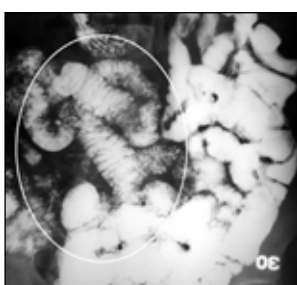


Figure 4: Fold reversal with folds more prominent in the ileum (inside oval) than in the jejunum (to the left of oval).

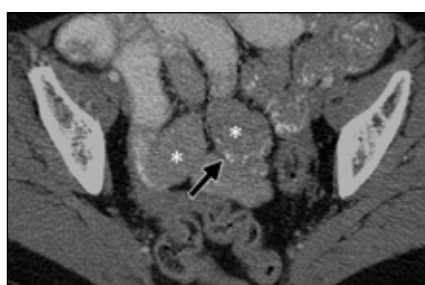


Figure 5: Dilatation of small intestinal loops with dilution (*) and flocculation of contrast material (arrow).



Figure 6: A large small intestinal volume with smooth walls (*) and laminar flow (**) and mesenteric lymphadenopathy (L).

leads to computed tomography (CT). Thus CT may be the first study available that can suggest the diagnosis of coeliac disease as well as showing the severity of the condition.

CT findings in coeliac disease include all the malabsorptive patterns described above for small bowel barium studies as well as mesenteric lymphadenopathy and large bowel findings both of which are not detectable with small bowel contrast radiography. Therefore CT is likely to be more sensitive in detecting coeliac disease than barium studies.

Malabsorptive features on CT include dilatation of small intestinal loops with dilution and flocculation of contrast material (Figure 5) and a large small intestinal volume with smooth walls and laminar flow and mesenteric lymphadenopathy (Figure 6). Laminar flow occurs due to wide intestinal caliber and may mimic intussusception. Intussusception is also more likely to occur in coeliac disease.

Chronic lymphatic stimulation with follicular hypertrophy and an increase in T and B lymphocytes is responsible for mesenteric lymphadenopathy (Figure 7) and is also thought to be the cause of the elevated lymphoma risk in coeliac disease.

Conformation is a term used to describe multiple distended small intestinal loops packed together with no intervening space; this is also suggestive of coeliac disease (Figure 8).

On reaching the colon, sugar and fat that are undigested by the small bowel will be “digested” by gas-producing bacteria, altering colonic function and structure. Chronic excess gas production will distend the colon, decreasing its tone and altering the appearance of both the colon and stool (Figure 9). Steatorrhoea and encrustation of the colonic folds with fat are visible on CT particularly with a lung window setting (Figure 10). Ball shaped stools containing air and fat in the centers may also be seen, these are known as “geodes” (Figure 11). Normally, there should be very little fluid in the colon; abundant colonic fluid seen on CT may be seen in coeliac disease. Fatty infiltration of small intestinal and colonic wall (Figure 12) and splenic atrophy are also features of coeliac disease.

Colonic CT features alone are not specific for coeliac disease, however when combined with small intestinal findings and lymphadenopathy, they are strongly suggestive of the disease.

CT is proving increasingly useful for the detection of a wide variety of intestinal diseases. It has the advantage of also evaluating all abdominal solid organs that may alter investigative algorithms to reach a correct diagnosis more rapidly. This in turn, reduces morbidity and mortality. The recently recognized high prevalence of coeliac disease makes it likely that some “healthy” subjects in past studies may have had coeliac disease. Patients with chronic abdominal pain particularly those classified as IBS (irritable bowel syndrome) may benefit from clinical and radiological review as coeliac disease is a much more treatable condition.

Important Note: The article does not discuss invasive tests that are sometimes used to confirm coeliac disease. These include gastro-duodenoscopy, jejunoscopy (with biopsy) and video capsule endoscopy. These techniques have a relatively high false negative rate and are technically difficult to perform. CT is a non-invasive procedure that may suggest coeliac disease when investigating abdominal pain, even when the diagnosis was not initially considered. Combining CT findings with antibody testing would avoid unnecessary invasive procedures.



Figure 7: Coronal CT reconstruction showing mesenteric lymphadenopathy (arrow).



Figure 8: Multiple distended small intestinal loops packed together with no intervening space called conformation (arrow).

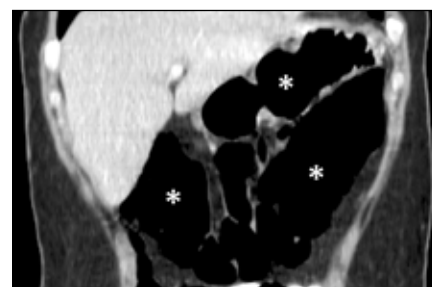


Figure 9: Gaseous distension of the colon (*).



Figure 10: Steatorrhoea (*) and encrustation of the colonic folds with fat (arrow) are visible on CT particularly with a lung window setting (right image).

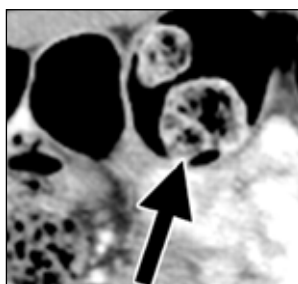


Figure 11: Goede (arrow).

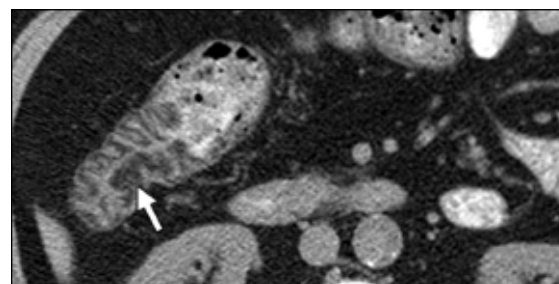


Figure 12: Fatty infiltration of proximal colonic intestinal wall (arrow).