

# OVERSPECIALISATION IN MEDICINE, OR WHAT ABOUT NOT SEEING THE FORREST BECAUSE OF THE TREES?

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## Abstract

Since early historical medical approach: shamanic era, ancient Hippocrates, Galen and Avicenna’s medical records, till today many progresses were made in the medical field. Yet, despite the technological achievements the efficiency of medical work didn’t always increase accordingly. A lot of diagnosis errors still occur. What could be the causes? One possibility among others could be overspecialization with seeing just a part of the true. Some clinical cases are presented to point that situation out. In the meantime this paper emphasizes the importance of reassessing the way of medical thinking by highlighting the importance of integrative medical approach. The key for decreasing diagnosis mistakes is in fact a multiple step process. There are some sides related exclusively to our doctor’s work as a routine and many others related to the providers ( medical system) by far more complex and with bigger impact. From my doctor’s point of view it’s mandatory to have the knowledge, that means a very good initially and if necessary further evaluation of the patient, integrative operational skills and experience leading to the relevant clinical data that will serve to a good orientation, completing the overall knowledge and decreasing the social costs, good and efficient communication system, active follow-up of the patients and if necessary rebuilding another way of thinking the first diagnosis, based on new evidence, reviewing and adjusting, trying not to be so “overconfident”, having the courage and dignity to face our own mistakes, demanding a second opinion, relearning and becoming even better by using feedback. The lack of time and daily routine imposed by overspecialisation, overstandardization and many algorithms and guidelines meant to do our work easier, somehow lead to an automatic judgement, putting us sometimes in the position of easyness and superficiality.

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**Keywords:** Diagnosis errors, overspecialization, integrative approach

## **1. Historical background: from medicine man to nourday physicians**

We know that there was a shamanic tradition that began deep in the history of humanity, kept alive till today in some areas, where a medicine man cure ill people by spirits incantations, specific dances and spells and eventually some empirical, secret treatments, passed from one generation to another. It's a way of healing by the power of mighty spirits that just go down to the earth and act thruout the medicine man. That is why the treatment won't work without completing the whole ritual. At that time nobody bothers undstanding the disease more than accepting it as a simple fact and sometimes as a punishment from above and therefore the treatment should come from the Gods that caused the illness, but always the healing process connected body to spirit as a whole entity [Garrison,1966; Margotta,1968].

Later in ancient time more than 1500-2000 years BC medicine was performed by egyptian doctors, based on evidence on the pharao's tombs written in hieroglyphic, also papyruses well preserved, describing dissections as a part of embalming technique; Occupation as doctor was known and accepted and patients treated in a similar way. Some medical knowledge was "scientific" based on anatomy, but many supernatural powers were still involved in explaining difficult situations. Gods like Bes were asked by the skills of priests to save patients life [Garrison,1966;Porter,1997].

In ancient Greek medicine was performed in temples like Asklepios and his two daughters : Panacea and Hygeea where healing was also a part of the Gods will.

Hippocrates personality in greek society marked an important transformation of the medical approach by trying to understand what and why happen to the patient by making common sense correlations between symptoms and signs and disease itself. Patient examination like today, started by taking the medical history with revealing the most important complains, in other words finding the symptoms. Then he actually examine the entire body beginning with the face of the patient, which is absolutly very important till today. So he did the inspection, palpation, percussion and possibly direct auscultation of the patients body parts and make notes about. This was the beginning of a scientific medical approach and Hippocrates actually made a complete evaluation of the patient: that means the assessment the patient with all his diseases and not the diseases of the patient. Even when priests claimed some sacre involvement mostly in neurological and psychiatric area, Hippocrates rejected that, saying that every disease should have a natural cause. He also wanted that doctors stick together as a guild and for that he just wrote the well-known by now "hippocratic oath" as a boundery and an ethycal way of living a life as a doctor in a society [Major,1965; Longrigg,1993].

In ancient Rome many aspects of greek culture, medical customs were “borrowed”, even the level of their technological civilisation was quite high, having apeducts, running water , public baths and toilets and a high standard of hygiene. They thought that body and mind are well connected and a fit body will be associated to healthy mind: “mens sana in corpore sano”. At that time another famous greek doctor, Galen, perform medicine at Rome, mostly by the hypocratic rules. He believed that disease is actually an imbalance between the four humours : phlegm, blood, yellow and black bile and a good treatment should somehow restore the orriginal balance.He also discovered that the opposite rule treatment work in some situation like when you have fiever you should be treated with cold fluids and by the contrary when catched cold you should get hot liquides [ Major, 1965; Garrison,1966; Porter,1997].

The middle age was a period of decline of all sciences including medicine, the religious believes prevaled so in most of cases diseases were just sinns, so God have to punnish the sinners, as simple as that.Treatments were like blood leaking and purgations, fasting and many priers. However there were universities like Monpelier and Leuven where students were teached the “Canon of medicine” written by the arabian philosopher Avicenna, founded by aristotelian principles and many of Galen medical precepts [ Bowers,2007].

Luckily the Rennaissance period marked a revival of sciences and also medicine began to rebuild step by step his own empire, by the people who had the courage to go public with different oppinions based on research, observation and logical deduction instead of empirism and dogmatism, people who had a great deal of knowlidge, the so called:” homo universalis”, that also understood the patient as a whole [Siraisi,1990].

After that there were a lot of great discoveries that made a difference and lead the medical science step by step near to the modern medicine [Singer,1962;Garrison,1966;Margotta, 1968,Lourdon,2013]. Industrial revolution, technological civilisation led us to what modern medicine achieved.

Today we’ve got a sophisticated medicine characterized by a huge diversity of specialities with many ramifications, each of them having in background the support of a tremendous research not only in the medical and pharmaceutical field but also in many other areas that should result in raising the quality of the medical services.

When we look back into the history of medicine many things seem so twisted but the idea of seeing the patient as a whole entity persisted long time. What shared all these doctors no matter the historical time they did perform medicine? The patient’s clinical examination and the specific, unique way of medical thinking in order to have the diagnosis. All the other

things related to medical approach dramatically changed over the time and I may say in a good way.

## **2.Short stories**

So called modern western medicine does it really work? And if not it is just because of doctors themselves? One should admitt that all doctors could in some circumstances make mistakes and misdiagnosis.Statistics say that there are some specialities where there is a higher percentage of misdiagnosis; appearantly specialities where visual abilities are involved are at low risk. By the contrary clinical specialities are reported to have a higher percentage of medical errors [Berner,2008].

If errors are a part of our practice, at least we should learn from our own faults: “Errare humanum est, perseverare diabolicum!”

Here are some insights, tricky situations like patients treated by trained specialists that believed knowing them very well. Yes and no: they just had knowledge about some of their ill organs, but was that the point?

### **2.1 Case number 1. “Very well treated by the cardiologist”**

Female patient, 65 years old, followed-up by cardiologist for a few years for a mitral valve prosthesis for mitral stenosis, atrial fibrillation with anticoagulant treatment and INR at good therapeutic levels, complained for several months of astenia, abdominal discomfort, bloating and occasionally troubles of intestinal habit with constipation.An abdominal ultrasound was performed but not of very good quality one, because of the patients meteorismus, that revealed a tiny ecofree strand in Douglas pouch due to the presence of liquid in the peritoneal cavity.Her cardiologist told her that everything it’s about her cardiac failure and increased the dosage of diuretics.After a couple of weeks of cardiologist regular visits she decided for a second opinion. Motivation: pursuing dyspeptic complaints and sensation of abdominal distension. Clinical examination raised the suspission of ascites with no marks for chronic hepatic stigmata or portal hypertension.High resolution ultrasound for abdomen and pelvis showed ascites in small/medium quantity, an irregular, thicked peritoneum, very small liver hipoechoic nodules and a cystic formation of her left ovary.

In this stage diagnostic was: Demons-Meigs syndrome due an ovary cyst, possible cystadenocarcinoma with secondary involvement of the liver and peritoneal serosa. Next exams (abdomino-pelvic MRI, tumoural markers) strongly supported that.She was also advised to perform a colonoscopy.

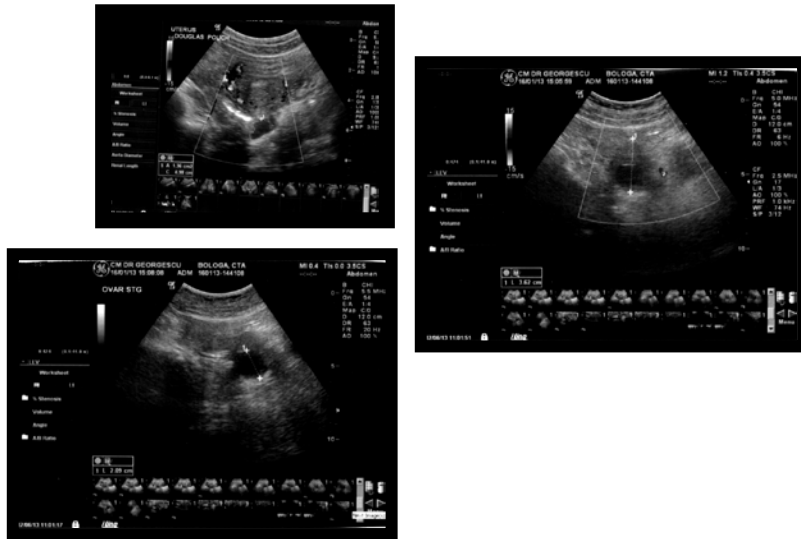


Figure 1 Ultrasound features of ovary cyst and ascites

Unfortunately the next week when she was about to have her first visit to oncologist, she developed a tremendous abdominal pain with cessation of intestinal transit, emesis and she was admitted to the surgical department for intestinal occlusion and operated in emergency conditions. The outcome was very bad with a lot of subsequent complications that occurred, eventually multiple organ failure syndrome and decess.

Discussion: We will never see something that we've never thought of! Maybe at the beginning this patient was a really typically cardiological one, but one should never forget that we treat a patient and not an organ even it's a very important one. We should always consider other possibilities, maybe not being so overselfconfident and the simple "why" question could be sometimes very usefull.

In the end what can we say : she was impecably treated by her cardiologist and she actually didn't die because of her heart. It's irronical: isn't it?

## 2.2 Case number 2. "I am not what I am"

Male patient, 58 years old, knew for gastrointestinal disorders and followed-up by gastroenterologist for peptic ulcer disease and chronic calcificant pancreatitis with satisfactory outcome. One day he developed an important lumbar pain, mictional disturbances with disuria and polakyuria.

After clinical examination the situation looks like a kidney collic and I performed an abdominal ultrasound. Bilateral kidney stones were seen, along with a few cacification in pancreatic area, a fatty liver and some thickening of the gastric wall. A few biochemical tests were runned including

ionogram of sera and urine, that revealed an increasing of calcemia and calciuria raising the suspicion of a hyperparathyroidism. The next move was an ecoDoppler of the thyroid gland and luckily a nodular hypoechoic mass was found.

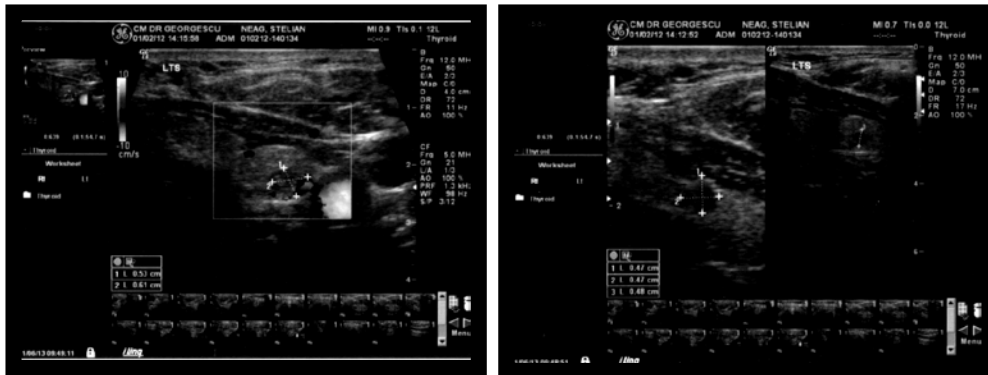


Figure 2 Parathyroid adenoma: ultrasound features

At that time the diagnostic was : possible parathyroidian adenoma; hyperparathyroidism with secondary nephrolytiasis, chronic calcificant pancreatitis and peptic ulcer disease. The case was referred to the surgical department for nodulectomy with anatomo-pathological exam and next to endocrinology.

Discussion It is not unlikely that a pathological entity to have multiple modalities of clinical expression and every specialist to treat his part as a "good samaritan" without seeing the bigger picture. Sometimes we should think big!

### 2.3 Case number 3. "Who doesn't have a nasty low back pain?"

Male patient, 63 years old, treated for a low back pain by NSAID and physical procedures, with no specific radiologic features on his spinal cord except for a mild demineralization. After a few weeks of treatment he complained of nausea, heart burning, bloating and came for an opinion. As gastroenterologist diagnosis was very simple : acute erosive gastritis after NSAID, but anamnesis revealed some other symptoms that didn't fit the profile. So, what was wrong in that picture? It was about his generally status: astenia, kind of palour, some night sweatings and a kind of chronic bad mood. What took my attention after running some tests was a mild proteinuria and microhematuria in a patients with no history and no ultrasound features of kidney disease. So I ordered an serum and urinary electrophoresis and immune electrophoresis. The diagnosis was monoclonal gammopathy possible multiple mieloma and the case was referred to hematology for further investigation and specific treatment.

Discussion We should take the time for taking a good history of the patient. After all putting two and two together it's not so difficult.

### **3. Discussions**

Are medical errors frequent? Berner at all in an analytic approach about overconfidence as a cause of medical errors showed that medical errors defined as “mistakes that result in permanent harm such as death, disability or additional or prolonged treatment” are not so rare, being reported as 35% by the respondents of this survey; 55% in outpatients and the rest related to the hospitalization situations. Some specialities are more prone to medical errors? It seems that in clinical specialities errors are more frequently compared to lab or imaging ones [Berner,2008].

What could be the causes? Complexity context of the diagnosis, influence of a team work ( emergency room, university clinics), system influences and individual differences like skills, experience, capability of taking the appropriate decision? [Berner,2008; Crandall,2008] All these questions are issued by non doctors , specialists in other areas. It's not so easy to make light in this matter! There are so many variables involved in this huge and complicated process of diagnosis. Some survey conducted on medical errors asking physicians about their own errors ended by not being relevant, majority of doctors didn't realize that they actually had mistakes [Crandall,2008; Graber,2008].

In my opinion this matter could be solved only when doctors also will freely and truly join a fair study aiming medical mistakes. Why? Because only they are in the position of providing critical inside intel. A mathematical approach of any given matter clearly state that if we start from wrong preliminary data, even the way of thinking is good the conclusions will be invariably wrong. So, the inside story is mandatory.

On the other hand how objective an individual could be when it comes for his own work? Other rhetorical questions...

If we can identify causes could we draw some feedback? [Schiff,2008] Yes we can, but another question rise: would the doctors apply? The truth is that, and I quote: “we should take a lot of steps towards a better future in medicine and also patients in their own way” [Graber,2008]. There is a kind of rigidity, stiffness and lack of adherence, when we are talking about taking some measures in medical area.

### **4. Instead of conclusions** More questions: What's to be done?

Another kind of approach or maybe a simple “coming back” to the good clinical practice precepts known since Hippocrates, some preserved till today, that we should diagnose and treat the patient with a disease and not the disease of the patient, could be a subject for a good start. It's not about

returning to the “stone’s age”, it’s just about restoring the integrative way of thinking of a patient. Only so we could be ended efficient, cause when you know where to look for something, you’ll probably find out it soon. The nouday technology will surely help you.

Historical speaking since Hyppocrates era till today medical errors occur, but we should militate for mitigatings these situations as much as possible.

In my opinion, as a doctor, the key for decreasing diagnosis mistakes is in fact a multiple step process. There are some sides related exclusively to our doctor’s work as a routine and many others related to the providers( medical system) by far more complex and with bigger impact.

For the medical point of view, regarding these error matter, a few aspects took my attention.

Therefore, I should highlight them:

First: It’s mandatory to have the knowledge, that mean a very good initially and if necessary further evaluation of the patient and this is not possible without a thoroughly clinical examination. Here we can’t make any discount.

Second: Integrative operational skills and experience will lead us to the relevant clinical data, that will serve us to a good orientation for certain lab and other working ups, completing the overall knowledge and decreasing the social costs.

Third: Communication, a lot of problems have their source in not succeeding to communicate in time or not communicate at all, like missing patients data, history of medical results and medication, resulting in eventually lack of knowledge( our first point of discussion)

Fourth: Keeping the patient „close“, that mean active follow-up and if necessary rebuilding another way of thinking our first diagnosis, based on new evidence, reviewing and adjusting, especially when it comes for “old”, “well known”, chronic patients, that can easily develop other pathologies and slept away.

Fifth: Trying not to be so “overconfident”, having the courage and dignity to face our own mistakes, demanding a second opinion, relearn and becoming even better by using feedback.

I have always said that the medical profession doesn’t change you as a human being but the man that you are could change you as a doctor: if you are a sincere one, so you’ll be a sincere doctor too and you’ll look at the feedback and adjust yourself; and if you are a courageous one, so you’ll be a boldly doctor who will fight for the patient’s good, doing the best you can.

The lack of time or daily routine imposed by overspecialisation, overstandardization and many algorithms and guidelines ment to do our task



easier, but somehow leading us to an automatically judgement, make us so often to forget or simple overlook what a good doctor should actually do.

**References:**

- Berner E S., Graber M L.: Overconfidence as a Cause of Diagnostic Error in Medicine ;The American Journal of Medicine Vol 121 (5A), S2–S2,2008
- Bowers B S., : The Medieval Hospital and Medical Practice, Aldershot (Ashgate Publishing 2007
- Crandall B, Wears R L, Expanding Perspectives on Misdiagnosis ;The American Journal of Medicine Vol 121 (5A), S30–S33, 2008
- Garrison, Fielding H.: History of Medicine, Published by Philadelphia & London: W. B. Saunders,1966
- Graber M L: Taking Steps Towards a Safer Future: Measures to Promote Timely and Accurate Medical Diagnosis, The American Journal of Medicine Vol 121 (5A), S43–S46, 2008
- Longrigg J: Greek Rational Medicine: Philosophy and Medicine from Alcmaeon to the Alexandrians, . London: Routledge,1993
- Loudon I : Western Medicine: An Illustrated History. Oxford University , 2013
- Major R H.: Classic Descriptions of Disease, Springfield,1965
- Margotta R: The Story of Medicine, Golden Press,1968
- Porter R. :The Greatest Benefit to Mankind. A medical history of humanity, WWNorton Company,London,1997
- Schiff G D Minimizing Diagnostic Error: The Importance of Follow-up and Feedback; The American Journal of Medicine Vol 121 (5A), S38–S42 , 2008
- Singer C, Underwood, Ashworth E.: A Short History of Medicine., New York: Oxford University Press,1962
- Siraisi N G: Medieval and Early Renaissance Medicine: An Introduction to Knowledge and Practice, Chicago,1990.