

## Missed Diagnosis of Amoebic Liver Abscess: A Case for Forward Clinical Reasoning

B.E Otaigbe FWACP

Department of Paediatrics, University of Port Harcourt Teaching Hospital.

### ABSTRACT

**Background:** Increasingly, a wrong diagnosis is made and wrong investigations and treatment ordered, because the doctor uses one or two symptoms to jump into a premature conclusion, without consideration of the totality of a patient's presentation. This is not forward clinical reasoning. Forward clinical reasoning is based on a systematic approach to patient's problems. The objective of this paper is to use a real case to illustrate the pitfall in ignoring forward clinical reasoning and how forward clinical reasoning serves the physician's and patient's interest better.

**Method/Result:** The case of a 3 year old who had amoebic liver abscess but was wrongly diagnosed and treated for lobar Pneumonia with pleural effusion is highlighted. The sequence for forward clinical reasoning is used to show how the right diagnosis could have been arrived at.

**Conclusion:** The correct diagnosis following sequential forward clinical reasoning saves time, money and life.

**KEYWORDS:** Amoebic liver abscess; Missed diagnosis; Forward clinical reasoning.

Paper accepted for publication 27th February 2006.

### INTRODUCTION

Effective patient management by all levels of medical practitioners and medical students depends on clinical reasoning which is based on a systematic approach to patient's problems.

The basis of this approach is the recognition that specific or non-specific symptoms and signs are generated by functional and anatomical abnormalities in one or more of the eight body systems which are, the central nervous, respiratory, cardiovascular, musculo-skeletal, genitourinary, digestive and haematologic.<sup>1</sup> This leads to attempts to get a complete history made up of the patient's biodata, presenting complaints, history of presenting complaints, past medical history, family and social history, other aspects such as pregnancy and birth history, immunisation, nutritional history, review of the systems and a proper examination of the patient.

An objective analysis and synthesis of all the above information will usually lead to a defensible clinical diagnosis and this process has been described as forward clinical reasoning<sup>1</sup>. Where on the other hand this systematic approach is ignored and shortcut approach is used and the clinician draws a premature conclusion

probably from observation only in the course of history taking, then proceeds to seek information to justify the conclusion, then the diagnosis can be missed. In some cases, a presenting complaint is completely ignored in favour of a sign the clinician observes. This is dangerous as it misleads the doctors, the laboratory physicians and the radiologists and could lead to unnecessary surgical intervention and even death.

This communication seeks to use this case to illustrate the pitfalls in not using clinical reasoning in the diagnosis of cases.

### CASE SUMMARY

A three year old male was seen in the Children's emergency ward of the University of Port Harcourt Teaching Hospital with an eight day history of high grade and intermittent fever, seven day history of right quadrant abdominal pain and breathlessness for one day. Abdominal pain was progressively increasing with no aggravating or relieving factors. There was no cough, no jaundice and stools were normal. There was anorexia and weight loss. Other histories were non contributory. The Registrar on call found the patient to be in respiratory distress with flaring alar nasi, tachypnoea of 60cycles/min and febrile (39.7°C). There were dull percussion notes in the right lower lung zone and decreased intensity of breath sounds in the right middle and lower lung base. The left lung was normal. There was a tender liver of 8cm below the right subcostal margin. A diagnosis of right lobar pneumonia with right pleural effusion was made. An urgent chest radiograph interpreted by the emergency ward doctor showed a right middle and lower zone opacity with airfluid levels.

The Cardiothoracic team was invited to review and after a? pleural tap which yielded 0.5mls of xanthochromic pyogenic fluid, inserted a chest tube which did not drain thereafter. The child received intravenous crystalline penicillin and gentamicin at appropriate doses.

A consultant next day noted in addition to the respiratory signs, a marked tenderness in the right hypochondrium with a tender, enlarged liver of 10cm. Spleen was not felt and kidneys not ballotable. There was no demonstrable ascites. A diagnosis of? Amoebic liver abscess with right lung involvement was entertained. An urgent repeat chest radiograph revealed elevation of the right dome of the hemi diaphragm with right lung collapse. Ultrasound scan showed a markedly enlarged liver harbouring a thick-walled abscess cavity in the posterior subdiaphragmatic

portion of the right lobe. The chest tube was removed and patient commenced on appropriate chemotherapy. With no marked improvement after a few days on chemotherapy, an exploratory laparotomy with open catheter drainage was done and one litre of "anchovy sauce" drained from the abscess cavity. The patient's clinical state improved remarkably and he was discharged after 10 days post-op.

## DISCUSSION

Diagnosis, which is a clinical conclusion, should be made by forward reasoning. In forward reasoning, the information set or pieces are identified, codified and analysed to see in what direction they point before a preliminary conclusion is made. The logical sequential order of thought should be as follows<sup>1</sup>

- a. From the symptoms ALONE, what system/systems are involved in the disease?
- b. From the symptoms and other aspects of history, what pathologic process is occurring?
- c. From the symptoms, other aspects of history and positive signs, what functional abnormality has been observed and in which system/s?
- d. From the symptoms, other aspects of history and positive signs, what structural abnormality has been observed and in which system/s?
- e. What pathology do the symptoms and signs in the involved system/s suggest?
- f. What is the one probable cause of this pathology?

Using the above sequence, in analyzing the history and examination of Baby I.O, the systems involved are the digestive and the respiratory. An inflammatory process is the pathologic process. The functional abnormalities include a tender hypochondrium, anorexia, weight loss and respiratory distress while a tender hepatomegaly and collapse of the right middle and lower lung zones are the structural abnormalities. Thus the cause of this pathology is a Liver pathology with right lung involvement. An aetiological diagnosis will be probable amoebic liver abscess with right lung collapse.

Clinical reasoning demands that information is used in making a diagnosis. From the history of presenting complains, the system/s involved can be thought of but rarely the pathologic process. However following the systematic approach, by the review of the systems, the system/s involved can be identified and the pathologic process described. By the time the patient is examined, the functional and structural abnormalities present can be

detected and a probable diagnosis made.

The wrong diagnosis of right lobar pneumonia with right pleural effusion was made by the first doctor because she ignored the presenting complaints of fever and abdominal pain of at least one week duration and focused on the fast breathing of one day duration. This bias probably arose from the signs of severe respiratory distress. If the above sequence was used, she would have noted that a lobar pneumonia was unlikely to account for the abdominal pain. Having missed the involvement of the digestive system, it follows that other considerations were likely to be misleading and would eventually lead to a wrong diagnosis and treatment. This lack of systemic approach also misled the radiologists and the cardiothoracic surgeons, who went ahead to insert a chest tube which of course did not drain.

A doctor must apply the knowledge of human structure and function, understand how pathology alters function, use the symptoms to determine the body system involved in the disease, analyse the relationship between symptoms and signs to be able to draw a defensible and logical conclusion. An attempt to make a diagnosis based only on history or to associate certain symptoms and signs with certain diseases, and to ignore some symptoms and signs in favour of others, is not forward clinical reasoning and can lead to missed and misdiagnosis.

## CONCLUSION

Diagnoses are best made from forward clinical reasoning. Forward clinical reasoning is an active process which involves asking and answering some key fundamental questions as information is obtained. The answers can only emanate from the information obtained and background knowledge being progressively processed from history to the end of physical examination. Sequential forward clinical reasoning saves time, money and life.

**ACKNOWLEDGMENT:** I wish to thank Prof Nkanginieme for proofreading this article and Dr Obhuo for her contribution.

## REFERENCES

1. Nkanginieme KEO. From Backward to Forward Clinical Reasoning: Time for a change. *Niger J Med* 2003;12(3):163-166.
2. Nkanginieme KEO. Thinking Like Child's Play Is Serious Business. An Inaugural Lecture, ISSN: 1119-9849 Inaugural Lecture Series. No 14, 19<sup>th</sup> May, 2005.