SAS Journal of Surgery ISSN 2454-5104
SAS J. Surg., Volume-3; Issue-3 (Mar, 2017); p-79-81
Available online at http://sassociety.com/sasjs/

Original Research Article

Role of Ultrasonography in the management of acute non- traumatic pain abdomen in a remote sub-divisional hospital

Dr. Partha Pratim Das[1], Dr. Niladri Sen[1], Dr. Siladitya Basu[1]
[1]Subdivisional Hospital, Barakar Road, Raghunathpur, Purulia, Pin – 723133

***Corresponding author**
Dr. Partha Pratim Das
Email: ppdas75@gmail.com

Abstract: Ultrasonography plays a key role in the management of acute non-traumatic pain abdomen. In a remote sub-divisional setup X-ray and Ultrasonography are the only investigations that we have in our hand. As a result we have to depend on Ultrasonography in the management of acute non-traumatic pain abdomen to a great extent. This retrospective study was planned to observe how much Ultrasonography really helps us in the management, what are the restrains hat we have and how those restrains could be overcome. The study based on randomly selected Ultrasonography reports of the indoor patients of acute non-traumatic pain abdomen admitted in the last one year. Analysis of those reports shows that Ultrasonography is definitely helpful but it is overused due to various reasons. We can still improve its quality by judicious and more specific use of Ultrasonography in this remote setup, where no other superior modern investigation is available to get more specific diagnosis.
Keywords: Ultrasonography, Retrospective analysis, Pain abdomen.

INTRODUCTION

Acute pain abdomen is a very common problem faced by doctors all over the world in their day to day practice. 5% - 10% emergency department visit are due to pain abdomen [1]. Abdomen is a magic box. There is many investigations presently available in the modern world for the proper diagnosis of acute pain abdomen. Proper diagnosis is required for timely surgical intervention to reduce morbidity and mortality. It poses a diagnostic challenge for the emergency physicians as the causes are numerous, ranging from benign to life-threatening conditions. Causes include gastro-intestinal, urological, and gynecological among others [2], Despite extensive evaluation, a quarter of patients usually remained with a non-specific cause but now with latest radiological imaging advances that number has decreased [3] .

Ultrasonography (USG) is a cheaper, non invasive, easily available investigation which can be done without any contrast material or radiation. It is also very sensitive and specific in some cases. It is useful in emergency screening of traumatic abdominal cases. At the same time it has also become very useful in non-traumatic acute pain abdominal cases. Especially in remote setups where sophisticated and costly investigations like CT scan or MRI etc are not available. But the diagnostic capability of USG depends on technical equipment and sonographer's expertise and competence. Allemann *et al*. reported that in USG done by surgeons for patients with acute abdominal pain it the correct diagnostic rate from 348 patients (70%) to 414 patients (83%). In the same study, USG was found to have sensitivity and specificity of 94% and 99% in diagnosing biliary tract disease [4].

At our Raghunathpur sub divisional hospital which is situated in Perugia, a remote district of West Bengal, approximately 20% of the indoor patients in surgical ward suffer from acute pain abdomen. We don't have emergency USG available 24hrs a day. So we usually refer the traumatic abdominal cases with suspected internal injuries to higher centre. For the Investigation of non- traumatic acute pain abdominal cases X-ray and USG are only tests presently available at our institution, done free of cost to those living below poverty level. So we depend on USG to a great extent.

The Objective of this study is to figure out whether USG actually helps in the management of acute non-traumatic pain abdomen in a setup like our hospital. If it does, then to what extent? Our aim is also to look into the restrains that we have and to discuss the issues to improve the utility of USG in this regard.

MATERIALS AND METHODS

This is a retrospective study. We selected all the patients admitted in the surgical wards of our hospital (both male and female) in the last one year (August 2012- July 2013), with a provisional diagnosis of 'Acute Pain Abdomen' (non traumatic) and

undergone USG for proper diagnosis, as our study population. From this group we selected fifty persons from each ward to a total of hundred patients as our sample size by way of random number table. We have only one radiologist in our hospital and all the reports were made by him. This excludes the main drawback of USG which is its operator dependency. The USG machine was also the same which again excludes instrumental bias.

We collected the USG reports done for acute abdominal cases in our hospital and also the final outcome of treatment from the hospital records / treatment cards and analyzed the results.

RESULTS

We analyzed the results for each category (male and female) and also as a whole for total sample population.

Table-1: Different Diagnosis in total sample population

Diagnosis	Male	Female	Total
Urolithiasis	9	9	18
Choledocholithiasis	0	3	3
Acute Appendicitis	1	1	2
GB Mass	0	1	1
Acute Cholecystitis	2	8	10
Ovarian Cyst	0	3	3
Kidney SOL	0	1	1
Ectopic Lt Kidney	0	1	1
Cystitis	1	0	1
Metastatic Liver	1	0	1
Hepatitis	1	0	1
No abnormality	35	23	58
Total	50	50	100

These are the diagnosis we found on examining the reports. All the patients were admitted with a chief complain of acute pain abdomen (non-traumatic). It is noteworthy that no abnormality detected on 58% of patients, more commonly in males (70% of males as compared to 46% in females).

Table-2: Outcome of management

Outcome	Male	Female	Total
Discharge	46	45	91
Refer	4	5	9
Death	0	0	0

Discharge rate 91% is quite good. Most of the patients responded to conservative pain management. Only 9% patients among the sample population were referred to higher centre. One person undergone open appendectomy. Patients with specific diagnosis (Urolithiasis, kidney SOL etc) were referred to higher centre after their discharge. No death found in the sample population.

DISCUSSION

When we look at the first chart, the first thing that strikes our mind is that 'no abnormality' was found in 58% of the patients, which is quite a high figure. On reviewing the literature, we found that similar low yield (50%) was observed in a study of non traumatic pain abdomen cases in a district level setup conducted by S. Raman, K, Somasekar, R.K. Winter & M.H. Lewis [5]. But Hari Prasad, Gabriel & Raj gopal found high yield (78.4%) in their work in a tertiary setup (Kasturba Medical college in Karnataka) [6]. McGrath et al in their study on the role of early USG in the management of the acute abdomen concluded that it is most useful in the diagnosis of gynecological disorders [7].

According to our observations, the cause of low yield in our setup is multifactorial, like-

Injudicious advice

We usually advise USG as a screening procedure ignoring thorough clinical examination. This is evident by the fact that more than 90% of the requisitions were made as 'USG of the whole abdomen' and do not bear any salient history or any clinical findings. This is due to the scarcity of specialist doctors in comparison to the high workload. This has made proper clinical examination and proper filling up of requisition forms more difficult. This can be only solved by increasing specialist doctors and proper communication between treating doctor and the radiologist.

Patient demand

Though it sounds ridiculous but it is one of the major causes of USG requisition in our set up. Patient's relatives sometimes force the treating doctors to advise USG. It is very hard to ignore. Proper party counselling and assurance can help to some extent in this regard.

Workload of Radiologist

We have a single radiologist for this hospital to cater both outdoor and indoor patients. On an average he has to do 40 USGs per day. It is quite understandable that quantity and quality is not linearly proportionate. Again, more radiologists are required.

No feedback from higher centre

As we don't have any CT scan or MRI, we usually refer those undiagnosed, non-responding cases to higher centre. Usually we don't get feedback from higher centre regarding the diagnosis.

Whatever may be the reason, Ultrasonography is being done at random for nonspecific pain abdomen cases. This ultimately causing wastage of resources and public money.

From the second chart we can see that 91% of the patients were discharged after treatment but only 9% patients were referred to higher centre. After examining the treatment records we observed that 26 patients were referred but only 9 of them were able to go to higher centre. From our point of view it is due to th high 'no abnormality rate'. Doctors usually refer a case which is not responding to usual conservative treatment within a certain time, in spite of having a normal USG report. In this remote set up this is done to avoid subsequent consequences. On the other hand the poverty and reluctance of the local people to go to the higher centre had made the actual referral rate so low, only 9%. But the question arises, why the death rate is zero? Our inference after examining the treatment records is that, most of the patients with normal USG were having nonlethal and nonspecific causes of pain abdomen (gastritis, worm colic etc). These cases were not diagnosed by USG and were relieved by usual conservative management in due course. This explains zero death rates.

CONCLUSION

From our observation it is evident that USG plays a crucial role in the management of acute pain abdomen in this remote setup. There is immense scope for improving its utility by selective / proper use. Increased number of specialist doctors in this remote setup may go a long way to improve the scenario.

Abbreviations: - USG – Ultrasonography. SOL – Space occupying lesion.

REFERANCES

1. Kamin RA, Nowicki TA, Courtney DS, Powers RD. Pearls and pitfalls in the emergency department evaluation of abdominal pain. Emergency medicine clinics of North America. 2003 Feb 28; 21(1):61-72.
2. Agboola JO, Olatoke SA, Rahman GA. Pattern and presentation of acute abdomen in a Nigerian teaching hospital. Nigerian medical journal: journal of the Nigeria Medical Association. 2014 May;55(3):266.
3. Powers RD, Guertler AT. Abdominal pain in the ED: stability and change over 20 years. The American journal of emergency medicine. 1995 May 1; 13(3):301-3.
4. Allemann F, Cassina P, Röthlin M, Largiadèr F. Ultrasound scans done by surgeons for patients with acute abdominal pain: a prospective study. European Journal of Surgery. 1999 Sep 1; 165(10):966-70.
5. Raman S, Somasekar K, Winter RK, Lewis MH. Are we overusing ultrasound in non-traumatic acute abdominal pain? Postgraduate medical journal. 2004 Mar 1; 80(941):177-9.
6. Prasad H, Rodrigues G, Shenoy R. Role of ultrasonography in non traumatic acute abdomen. The Internet Journal of Radiology. 2006; 5(2):1-2.
7. McGrath FP, Keeling F. The role of early sonography in the management of the acute abdomen. Clinical radiology. 1991 Sep 1; 44(3):172-4.