Original Article

# Nonspecific Abdominal Pain: A Follow-up Survey

*N Koyuncu, O Karcioglu[1], S Sener[2]*

Department of Emergency, Haydarpasa Numune Training and Research Hospital, University of Health Sciences, [1]Department of Emergency, Istanbul Training and Research Hospital, University of Health Sciences, Fatih, [2]Department of Emergency Medicine, School of Medicine, Acibadem University, Atasehir, Istanbul, Turkey

**Abstract**

**Introduction:** Little data have been published on the outcome of patients discharged from the emergency department (ED) after being diagnosed with nonspecific abdominal pain (NSAP). This study aimed to investigate short-term follow-up of patients discharged with a diagnosis of NSAP from the ED. **Materials and Methods:** This prospective, observational study was conducted in the University-based ED and enrolled all consecutive adult patients who were diagnosed as NSAP out of patients presented with abdominal pain (AP). The main outcome measure was the presence of recurrent AP resulting in referral to the ED and specific diagnoses within the first 3- and 90-day postdischarge. On the 3rd and 90th days, all patients discharged with NSAP from the ED were asked questions, and their response entered into a questionnaire. **Results:** A total of 684 patients presented with AP, of which 299 (46%) had a diagnosis of NSAP within the 4-month period. Fifty cases (16%) could not be included due to inability to access. Eighty-one out of 249 patients (32.5%) complained of recurrent AP within the first 3 days. Twenty-two cases (8.8%) were readmitted to ED once again in the meantime, and ten received specific diagnoses including three with acute abdomen. Within 90 days, additional nine patients out of 20 (45%) with recurrent AP received specific diagnoses including two with acute abdomen. **Conclusions:** Certain specific underlying entities can be missed in patients considered to have NSAP and discharged from the ED. Adherence to timely follow-up and repeated examinations are of vital importance in these patients.

**Keywords:** *Abdominal pain, acute abdomen, emergency department, nonspecific abdominal pain*

**Date of Acceptance:**
22-Jun-2017

## Introduction

Resulting from a myriad of causes, abdominal pain (AP) does not generally lead to a specific diagnosis and is identified as nonspecific AP (NSAP) which is the single most common diagnosis in these patients (up to half of the cases).[1,2] On the other hand, elderly patients who mostly turn out to receive specific diagnoses mainly composed of biliary tract diseases, only one-sixth are diagnosed as NSAP.[3-5] It is a diagnosis of exclusion, and the condition is mostly self-limiting. Despite substantial financial burden, there are few data on long-term outcome after initial diagnosis has been recorded as NSAP in the emergency department (ED) after being diagnosed to have NSAP. Some authors detected that these patients developed emergency conditions such as cholecystitis, appendicitis, pancreatitis, and ileus in days or weeks.[6] To date, it has not been clear to what extent NSAP may represent an underlying intra- versus extra-abdominal problem. The only key measure to confirm NSAP is reexamination in certain intervals. Nausea presents in nearly half of the patients. Pain is usually located in midepigastric or in the lower half of the abdomen. Tenderness is moderate and is not elicited in about one-third of the patients. Laboratory tests are usually normal although a mild leukocytosis can be seen with NSAP. Abdominal radiographs are virtually always normal or nonspecific. The key to confirming NSAP is reexamination overtime.[7]

Access this article online

Quick Response Code:

Website: www.njcponline.com

DOI: 10.4103/njcp.njcp_30_17

***Address for correspondence:*** Prof. O Karcioglu, Department of Emergency Medicine, Istanbul Education and Research Hospital, PK 34098, Fatih, Istanbul, Turkey.
E-mail: okarcioglu@gmail.com



**How to cite this article:** Koyuncu N, Karcioglu O, Sener S. Nonspecific abdominal pain: A follow-up survey. Niger J Clin Pract 2018;21:332-6.

Around 90% of the patients discharged from the ED with NSAP have been found to improve or remain asymptomatic at 2–3 weeks. One-third of the remainders turn out to prompt surgical intervention due to acute appendicitis.[7] The objective of this study is to investigate 3-day and 3-month follow-up of patients discharged with NSAP from the ED.

## Materials and Methods

This prospective, observational study was conducted in the University-based ED between August 1st and December 1st, 2000 and enrolled all consecutive adult patients who had been diagnosed as NSAP out of patients presented with AP after completing physical examination, laboratory investigations, and consultations. Patients with a history of trauma, those who had been admitted into the surgical ward for surgical procedures, were excluded from the study. The use of analgesics and antibiotics by the patient, both of which may, to some extent, modify the pain, was not included in the selection/exclusion criteria for the present study.

NSAP was diagnosed after acute abdominal conditions, and other specific diagnoses had been ruled out by the emergency physician on duty. Relevant laboratory and radiological investigations (mainly ultrasound, computed tomography, urinalysis, and certain tests in blood chemistry) were employed as necessary. After all, the diagnosis is mainly a clinical one, based on exclusion of the entities requiring surgical or clinical intervention. Patients are required to be free of tenderness and guarding to be discharged from the ED. Patients with AP were examined, and laboratory investigations were reviewed by the emergency physician. Data regarding demographic variables, history, findings in physical examination, and laboratory results were recorded in the study charts.

On the 3rd and 90th days, all patients discharged with NSAP from the ED were called up and asked to answer a standard questionnaire. Hospital records were also analyzed regarding specific diagnoses established after discharge.

Statistical analysis was done using "SPSS version 16.0 for Windows" (SPSS Inc, Chicago) statistical program. $P < 0.05$ was considered statistically significant. Mean values were provided as mean ± standard deviation.

## Results

Forty-six percentage ($n = 299$) of 648 patients presenting to the ED with AP were diagnosed as NSAP within the 4-month study period. Fifty cases (16%) could not be included due to inability to communicate. The remaining 249 cases constituted the study population.

Mean age of the patients was 38.4 ± 15.6 (range: 18–88), and female/male ratio was 2.4. Mean age of female patients was 37.2 ± 15.0 versus 41.2 ± 16.7 of male patients. Patients younger than 50 years of age comprised 69.4% ($n = 191$) of the patients with NSAP. Female patients younger than 50 years of age constitute 56.6% of patients.

A 3rd -day phone contact revealed that 81 out of 249 patients (32.5%) complained of recurrent AP within the first 3 days after ED visit. A total of 22 cases were admitted to the ED once more and ten (45.4%) received specific diagnoses shown in Table 1. Three cases were operated on for acute abdominal conditions such as acute appendicitis, acute cholecystitis, and gastric tumor

**Table 1: Diagnoses established within three and ninety days in patients discharged with NSAP**

| Diagnoses | Within three days No. of cases | Between three and ninety days No. of cases |
|---|---|---|
| Cholelithiasis | 1 | 3 |
| Tubo-ovarian mass | 1 | 2 |
| Acute appendicitis | 1 | 2 |
| Urolithiasis | 1 | 1 |
| Pelvic inflammatory disease | 1 | - |
| Gastric tumor perforation | 1 | - |
| Acute cholecystitis | 1 | - |
| Colonic polyp | 1 | - |
| Peptic ulcer disease | 2 | - |
| Lung cancer | - | 1 |
| Total | 10 | 9 |

**Table 2: Distribution of patients regarding pain localization (in decreasing order)**

| Localization of pain | *N* | % |
|---|---|---|
| Epigastrium | 112 | 45 |
| Periumbilical | 52 | 20.9 |
| Right lower quadrant | 18 | 7.2 |
| Right upper quadrant | 14 | 5.6 |
| Bilateral inguinal area | 12 | 4.8 |
| Left lower quadrant | 8 | 3.2 |
| Suprapubic area | 7 | 2.8 |
| Left upper quadrant | 5 | 2.0 |
| Total | 249 | 100.0 |

**Table 3: Relation of pain on discharge and recurrent abdominal pain within three days**

| Pain on discharge | ED referral within 3 days | | Total *n* (%) |
|---|---|---|---|
| | Yes *n* (%) | No *n* (%) | |
| Yes | 16 (6.4) | 46 (18.5) | 62 (24.9) |
| No | 152 (61) | 35 (14.1) | 187 (75.1) |
| Total | 168 (67.5) | 81 (32.5) | 249 (100) |

perforation. One case of gastric perforation resulted from gastric lymphoma which led to mortality.

Patients were called and hospital records were reviewed at the 90th day, and it was noticed that 19 additional patients were referred to the ED once more in this period (between 0 and 90th days). Nine patients (47.4%) out of these 19 who presented between 3 and 90 days had received specific diagnoses and were described in Table 1. Among these, five were operated on as acute abdomen (three emergent, two elective). Another case was hospitalized to obtain a biopsy specimen. Between 3rd and 90th day, 6 other cases among patients with recurrent AP underwent operation (four emergent, two elective).

The most common localization of pain reported by the patients was epigastrium [Table 2]. Pain localization was not found to be significantly related to the establishment of a delayed diagnosis ($P > 0.05$).

Among 249 patients with NSAP, the most common symptom reported to be associated with AP was nausea in 115 (46.1%), followed by nausea and vomiting in 45 (18%). Abdominal tenderness was detected in 198 (79.5%) cases. Eighteen out of 19 who were diagnosed with specific conditions after readmission to the ED within 3 months had abdominal tenderness on arrival in the ED. The relation of presence of tenderness on examination in ED and having been diagnosed in 3 months was not found statistically significant ($P > 0.05$).

Sixty-two patients (24.9%) had ongoing mild-to-moderate pain on discharge. The ratio of patients referred to the ED once more within 3 days was 6.4% in this group of patients with persistent pain versus 61% of patients without pain on discharge. The difference was statistically significant [$P < 0.05$, Table 3].

The majority of the patients ($n = 155$, 62.7%) stayed in the ED for up to 4 h, while 76 patients (30.5%) stayed for 4–8 h and 18 patients (7.3%) for longer than 8 h. All 19 patients who have been diagnosed with specific entities in 3 months had stayed in the ED shorter than 12 h. There was a significant relationship between stay time in ED and delayed diagnosis ($P < 0.05$), whereas having been diagnosed with acute abdomen, it was not significantly related to the length of stay ($P > 0.05$).

## Discussion

de Dombal, Gallagher, and Sanson and O'Keefe pointed out that although a broad range of entities could cause AP, 34%–52% of patients admitted into the ED with AP are discharged with so-called NSAP.[1,2,7-10] In a study from Virginia Medical Center consisting of 1000 consecutive patients with AP, 41% were diagnosed as NSAP.[5] In a multicentric study by de Dombal, the most common diagnosis established after the thorough evaluation was NSAP.[1] These figures are in accordance with those of the present study, in which 46.7% ($n = 550$) of all patients referred to ED with AP were discharged with the diagnosis of NSAP.

Several reports pointed out that sex was an important determinant in the diagnosis of AP and women are diagnosed as NSAP more commonly than men. Female/male ratio was found 3/1 in a study of 307 patients who diagnosed as NSAP.[6] The data elicited from the present study are similar to this ratio with 71% of 249 patients with AP being women. Lukens *et al*. indicated that women younger than 30 years of age constituted the majority of the AP population in the ED, whereas in this study, 56.6% of the patients were women <50 years of age.[6] Cross-country sociodemographic differences in the NSAP population could be the subject of broad, well-designed studies in this area.

Substantial data have been published on the outcome and ultimate diagnoses of patients discharged from the ED in a given time period. In a nationwide registry-based cohort study of 24.801 patients discharged with NSAP from Swedish EDs in 2011, Ferlander *et al*. found that 2.2% of the sample were diagnosed with cancer within a year.[11] They also emphasized that elderly patients and those with comorbidities were over-represented in terms of developing malignancies in the study period. In a 3-year observational study, on 508 young women, Morino *et al*. compared the effects of clinical observation and laparoscopic intervention on the outcome.[12] They indicated that although a higher number of "definite" diagnoses and a shorter mean length of stay were noted in the Laparoscopy (LAP) group, there was no significant reduction in symptoms recurrences at 1 year. Therefore, early laparoscopy did not show a clear benefit in women with NSAP.

In a 5-year follow-up analysis of prospectively collected data on 104 patients admitted to the ED in 2003 with NSAP, Banz *et al*. found that up to 75% of the patients received multiple diagnostic examinations and 13% of these patients eventually required surgery.[13] Interestingly, 28% of patients continue to suffer from recurring NSAP after 5 years. The percentage of the patients with recurrent AP and eventual specific diagnoses within 3 months after discharge is somewhat lower (7.6%) maybe because of shorter follow-up period or other factors.

Lukens *et al*. followed 307 patients discharged with NSAP after 3 and 21 days.[6] No patients died within 3 weeks. Thirty-two out of 307 patients (10.4%) with NSAP were admitted to the ED because of recurrent

AP within 3 weeks, and ten received specific diagnoses including one case with ileus who was the only case of delayed diagnosis of acute abdomen. On the other hand, in the present study, one patient died from complications secondary to cancer. Ten patients out of 249 patients who had been discharged as NSAP received specific diagnoses within 3 days after ED discharge besides an additional nine cases within 3 months. These patients included three cases with acute abdomen in the first 3 days and another two in 3 months.

Jess *et al*. and Doshi and Heaton indicated that the most common diagnosis established in patients discharged with NSAP was acute appendicitis.[14,15] Doshi and Heaton speculated that these patients might have harbored appendicitis on the first presentation and somewhat resolved in the course.[15] In the present study, three patients were diagnosed as acute appendicitis within 3 months. Cholelithiasis was found to be the most common diagnosis within 3 months.

Staniland *et al*. reported that the majority of patients with NSAP described their pain in the right lower quadrant.[16] Likewise, Doshi and Heaton published similar results.[15] Another study showed that epigastrium was the most common localization.[6] The results of this study were consistent with the latter. Nonetheless, localization of pain was not found to be related to the establishment of a delayed diagnosis.

Recent literature supported more liberal use of point-of-care ultrasound by emergency physicians to render expedient care in the diagnosis of virtually all types of presentations in the acute setting. For instance, Jang *et al*. found that 58 patients (45%) had an improvement in diagnostic accuracy and planned diagnostic workup using emergency physician-performed ultrasound (EPUS). They concluded that EPUS appears to positively impact decision-making and diagnostic workup for patients presenting to the ED with NSAP.[17]

Lukens *et al*. found that 28.4% of patients discharged with NSAP described their pain to be the same while 3.7% claimed to be worse.[6] This finding is similar to the present study, in which 24.9% ($n$ = 62) of the study population complained of persisting pain on discharge. Thirty-two patients had been referred to the ED within this period. In Lukens' study, 42 patients were admitted to the ED within three weeks, whereas in the present study, 81 (32.5%) out of 249 patients reported similar pain episodes within 3 days and 20 of them were referred to the ED in 3 days and ten received diagnoses. When the follow-up was extended to 3 months, 22 patients were added to the patients with recurrent pain. Nine additional cases received diagnoses within 3 months. In the present study, 24.9% ($n$ = 62) of the study population complained of persisting pain on discharge. These comparisons suggest that in different countries with sociodemographic variations similar rates of patients can be anticipated in the emergency setting.

Lukens *et al*. reported the rate of nausea complicating AP as 46%.[6] Similarly, 46.1% of the present sample with NSAP had complained of nausea.

## Conclusions

These findings suggest that specific underlying etiologies such as biliary colic or acute abdomen could be easily missed in patients considered to have NSAP and discharged from the ED. Adherence to timely follow-up and repeated examinations before discharge are of vital importance in these patients. Ensuring that AP is relieved and findings on examination are normal on discharge appears to be the key points for a safe discharge protocol. NSAP should not be a final diagnosis. Follow-up and repeated examinations are of vital importance. Finally, NSAP still remains, despite more efficient diagnostic arsenal, a true and as yet, unsolved problem.

### Financial support and sponsorship

Nil.

### Conflicts of interest

There are no conflicts of interest.

## References

1. de Dombal FT. The OMGE acute abdominal pain survey. Progress report, 1986. Scand J Gastroenterol Suppl 1988;144:35-42.
2. Gallagher EJ. Gastrointestinal emergencies: Acute abdominal pain. In: Tintinalli JE, Kelen GD, Stapczynski JS, editors. Emergency Medicine: A Comprehensive Study Guide. 6th ed. North Carolina: McGraw-Hill; 2004. p. 487-508.
3. Younis MT. Evaluation of acute abdominal pain. In: George Schwartz, Peter Safar, John Stone. editors. Principles and Practice of Emergency Medicine. Philadelphia: WB. Saunders; 1978. p. 567-72.
4. Fenyo G. Acute abdominal disease in the elderly. Am J Surg 1982;143:75-53.
5. Brewer RJ. Abdominal pain analysis of 100 cases. Am J Surg 1976;131:219-22.
6. Lukens TW, Emerman C, Effron D. The natural history and clinical findings in undifferentiated abdominal pain. Ann Emerg Med 1993;22:690-5.
7. Gallagher EJ. Acute abdominal pain. In: Tintinalli JE, Kelen GD, Stapczynski JS, editors. Emergency Medicine: A Comprehensive Study Guide. 6th ed. New York: McGraw-Hill; 2004.
8. Sanson TG, O'Keefe KP. Evaluation of abdominal pain in the elderly. Emerg Med Clin North Am 1996;14:615-27.
9. De Dombal FT. Computer diagnosis of acute abdominal pain in the elderly. Br Med J 1972;2:9-12.
10. Buddham GR, Bengiamin RN. Abdominal pain. In: Rosen P, Barkin R, Danzl DF, editors. Emergency Medicine: Concepts and Clinical Practice. 8th ed. St. Louis: Mosby; 2014. p. 223-331.

11. Ferlander P, Elfström C, Göransson K, von Rosen A, Djärv T. Nonspecific abdominal pain in the Emergency Department: Malignancy incidence in a nationwide Swedish cohort study. Eur J Emerg Med 2016. [Epub ahead of print].
12. Morino M, Pellegrino L, Castagna E, Farinella E, Mao P. Acute nonspecific abdominal pain: A randomized, controlled trial comparing early laparoscopy versus clinical observation. Ann Surg 2006;244:881-6.
13. Banz VM, Sperisen O, de Moya M, Zimmermann H, Candinas D, Mougiakakou SG, *et al.* A 5-year follow up of patients discharged with non-specific abdominal pain: Out of sight, out of mind? Intern Med J 2012;42:395-401.
14. Jess P, Bjerregaard B, Brynitz S, Holst-Christensen J, Kalaja E, Lund-Kristensen J, *et al.* Prognosis of acute nonspecific abdominal pain. A prospective study. Am J Surg 1982;144:338-40.
15. Doshi M, Heaton KW. Irritable bowel syndrome in patients discharged from surgical wards with non-specific abdominal pain. Br J Surg 1994;81:1216-8.
16. Staniland JR, Ditchburn J, De Dombal FT. Clinical presentation of acute abdomen: Study of 600 patients. Br Med J 1972;3:393-8.
17. Jang T, Chauhan V, Cundiff C, Kaji AH. Assessment of emergency physician-performed ultrasound in evaluating nonspecific abdominal pain. Am J Emerg Med 2014;32:457-60.