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Brief Reports

CHEST PAIN A MANIFESTATION OF MIGRAINE

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☐ **Abstract—Background: Chest pain is an alarming symptom; it justifies many visits to the emergency department (ED). The etiology is often unknown. Chest wall pain in the presence of migraine headache, although not a common occurrence, is intriguing when it resolves with antimigraine treatment. Objectives: To characterize the manifestations and outcomes and investigate the relationship between chest wall pain and headache as a manifestation of migraine exacerbation. Methods: Among patients visiting our ED, we identified those individuals whose pain originated in the chest wall in the setting of migraine exacerbation. Patients with clinical indications for specific treatments were dispositioned accordingly. Control of symptoms including chest pain and headache with antimigraine agents was considered the primary outcome. A prospective follow-up via telephone interview and medical records review was performed. Results: We collected a convenience sample of 33 patients. All manifested migraine headache with an earlier onset than the chest pain, and all had taken medications prior to visiting the ED. Twelve patients reported a higher visual analog scale score for the headache than for the chest pain. Still, chest pain was the main complaint. The chest pain originated at the chest wall. Ten patients received sublingual nitroglycerin or opiates, or both; no pain relief was reported. However, all symptoms resolved with metoclopramide. On follow-up, 6 patients reported recurrence of chest pain with subsequent migraines. Conclusions: Chest pain can be a complication of migraine. The treatment should be focused on migraine control. Migraine should be included in the differential diagnosis of chest pain. Published by Elsevier Inc.**

☐ **Keywords—allodynia; migraine; chest pain; visual analog scale**

INTRODUCTION

Allodynia is the experience of pain from a nonpainful stimulation of the skin. It might develop as a result of signal processing changes in the nervous system associated with poorly controlled pain syndromes, including migraine. Some extracephalic manifestations of migraine have been described in the medical literature, but chest pain in the form of allodynia of the chest wall secondary to migraine has not (1). Chest pain is considered by many patients to be an alarming symptom that justifies a visit to an emergency department (ED).

Chest pain, which is the second most common reason for visits to EDs in the United States (US), can be very diverse in timing, location, quality, radiation, modifying factors, and associated symptoms (2). The co-existence of alarming symptoms commonly justifies extensive testing and hospital admission, yet a clear etiology for the chest pain may never be found. ED physicians traditionally stratify chest pain patients by risk of cardiovascular disease (CVD) based on age and medical, family, and social history; the subgroup categorized as being at low risk

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for CVD still represents a clinical challenge when the chest pain is unresolved or the etiology is unknown (3).

Headache is also a common symptom and accounts for 1–3% of ED visits by adults (4). Headache can be accompanied by a wide range of cephalic, extracephalic, and systemic conditions. In the absence of more serious illness, headache is rarely considered clinically significant. Migraine rarely requires hospital admission or extensive diagnostic testing. In fact, it can be accurately diagnosed in adults in the ED or clinic on the basis of a three-item questionnaire (the ID Migraine), a tool that has already been validated in the primary care setting (Table 1) (5). In my emergency medicine practice, I have noted the occurrence of chest pain in rare patients with migraine. This prompted a study of the two conditions, whose association has not previously been reported.

METHODS

Between November of 2005 and March of 2010, we concluded a descriptive series with a registry and follow-up of patients visiting the ED with a complaint of chest pain in the setting of uncontrolled migraine to identify any causes of chest pain or headaches other than migraine. We conducted follow-up with telephone interviews and medical record reviews. In all the cases we studied, both the chest pain and the headache were fully resolved with adequate migraine therapy.

Among attending physicians and residents we established a surveillance task for patients presenting to the ED with chief complaint of chest pain found to be reproducible to touch, concomitant migraine headache, and no indication for ancillary tests. Initial data collection was obtained at the patient's bedside, which included headache and chest pain time of onset, characterization, and intensity scores assessed by visual analog scale (VAS). Associated symptoms and the presence of aura were also recorded. Those patients with clinical indication for further workup were treated and disposition was assigned accordingly. Because our objective was to characterize and investigate the relationship between chest wall pain and headache as a manifestation of migraine, we obtained consent for chart review and telephone follow-up only in those considered to have migraine as the cause of the headache and chest wall pain secondary to it. The telephonic follow-up included a scripted questionnaire inquiring for the recurrence of the symptoms and patient general health.

Study Setting and Population

All patients were treated at one of two academic EDs in Houston, Texas: one at a tertiary-care hospital with an ED census of 75,000 patients per year, and one at a suburban hospital with an ED census of 85,000 patients per year. The two EDs combined see an average of 10,397 patients per year with a chief complaint of chest pain, and 3803 with a chief complaint of headache.

Selection of Cases

In our surveillance we identified patients who presented to the ED with each of the following:

- Chest pain reproducible by palpation of the chest wall.
- Concomitant headache.
- No clinical indication for ancillary diagnostic testing based on either of the above complaints.

For risk stratification of CVD as the cause of chest pain, we used a preestablished list of risk factors (age, smoking, diabetes mellitus, hypertension, hypercholesterolemia, and obesity), to which we added cocaine abuse. In those without previous history of migraine, the diagnosis was established on the clinical basis using a three-item scripted questionnaire (the ID Migraine) (3). All patients reported two or more headaches in the previous 3 months. They also indicated that they had considered speaking to a health care professional about their headaches or that they have experienced a headache that

Table 1. Migraine Diagnosis Based on Three Identification Criteria (ID Migraine) (5)

One of the following (A or B):
- A. Prior migraine diagnosis by primary care physician or neurologist.
  OR
- B. Diagnosis of migraine in the ED based on both of the following (1 and 2):
  - 1) Answering YES to both of the following questions (a and b):
    - a. Have you had two or more headaches in the previous 3 months?
      AND
    - b. Do you wish to speak to your doctor about your headache or have you experienced a headache that limited your ability to work, study, or enjoy life?
      AND
  - 2) Presence of two of the following (ID Migraine criteria): photophobia, nausea, and disability (unable to work, study, or do what you need to do for at least one day).

ED = emergency department.