

Trends in Use of Percutaneous Versus Open Surgical Drainage of Abdominal Abscesses

David C. Levin, MD^{a,b}, David Eschelmann, MD^a, Laurence Parker, PhD^a, Vijay M. Rao, MD^a

Abstract

Purpose: To compare recent trends in the use of percutaneous and surgical approaches to treating abdominal abscesses in a large population.

Methods: The nationwide Medicare Physician/Supplier Procedure Summary Master Files for 2001 through 2013 were searched. Current Procedural Terminology-4 codes were selected for the four types of abdominal abscesses that had distinct codes for both open surgical and percutaneous drainage—appendiceal, peritoneal, subphrenic, and liver. Medicare specialty codes were used to determine if the procedures were performed by radiologists or other nonradiologist physicians. Trends in use of the two approaches were compared.

Results: In 2001, a total of 14,068 abdominal abscesses were drained percutaneously. This volume increased progressively every year thereafter, reaching 28,486 in 2013 (+102%). Open surgical drainage volume was 8,146 in 2001, decreasing progressively to 6,397 in 2013 (−21%). In 2001, 63% of all abdominal abscesses had been drained percutaneously; by 2013, this figure had risen to 82%. In 2001, radiologists had performed 90% of all percutaneous abdominal abscess drainages; this percentage share increased to 97% in 2013. Of all abdominal abscesses treated in 2013 in Medicare patients, 79% were treated by radiologists.

Conclusions: Use of percutaneous drainage of abdominal abscesses has steadily increased, whereas use of open surgical drainage has declined. The vast majority of these abscesses are now treated percutaneously. Radiologists are a strong majority of those performing the procedures. Although this database does not provide information on outcomes, percutaneous drainage is another good example of radiology-related value.

Key Words: Medical economics, abscess drainage, percutaneous, open surgical, interventional radiology, radiology and radiologists, socioeconomic issues

J Am Coll Radiol 2015;12:1247-1250. Copyright © 2015 American College of Radiology

Percutaneous drainage of abdominal abscesses has been performed since the pioneering reports of Haaga et al [1,2], and Gerzof et al [3,4], almost four decades ago. Over the ensuing years, numerous other studies, in both radiology and surgery, have established the efficacy of the technique [5-18], which is now widely practiced. The percutaneous approach is considerably less invasive and

often carries less morbidity than the open surgical approach. Nevertheless, not all abdominal abscesses are accessible percutaneously, so surgery is still performed in some instances. In this study, we examined utilization trends of the two approaches in four types of abdominal abscesses, for which matching codes are available in the Current Procedural Terminology, version 4 (CPT-4) manual.

^aDepartment of Radiology, Center for Research on Utilization of Imaging Services (CRUISE), Thomas Jefferson University Hospital, Philadelphia, Pennsylvania.

^bHealthHelp, Inc, Houston, Texas.

Corresponding author and reprints: David C. Levin, MD, Department of Radiology, Main 1090, Thomas Jefferson University Hospital, Philadelphia, PA 19107; e-mail: david.levin@jefferson.edu.

David C. Levin, MD, is a board member and has received fees from Outpatient Imaging Affiliates LLC and consultant fees from HealthHelp, Inc. The other authors have no conflicts of interest related to the material discussed in this article.

METHODS

Our data sources were the Medicare Part B Physician/Supplier Procedure Summary Master Files for 2001 through 2013. These files cover all Medicare fee-for-service beneficiaries in traditional Medicare (37.3 million in 2013), but not those in Medicare Advantage plans. For each CPT-4 code each year, they provide

Table 1. Current Procedural Terminology-4 codes used in the analysis

Open surgical drainage codes	
44900	appendiceal
49020	peritoneal
49040	subphrenic
47010	liver
Percutaneous drainage codes	
44901	appendiceal
49021	peritoneal
49041	subphrenic
47011	liver

procedure volume, specialty of the physician provider, and other administrative information. The provider specialty is indicated using any one of Medicare's 108 self-identified specialty codes. Physicians using the specialty codes for diagnostic radiology, interventional radiology, or nuclear medicine were considered "radiologists." The CPT-4 manual lists four types of abdominal abscesses for which separate surgical and percutaneous drainage codes are available—appendiceal, peritoneal, subphrenic, and liver. The specific codes are listed in Table 1. Because each of these four areas has the matching codes, direct comparison of trends in use of surgery and percutaneous drainage was possible.

The Medicare fee-for-service population increases over time. For example, beneficiaries numbered 34.0 million in 2001, and 37.3 million in 2013. To adjust for this increase, we calculated the utilization rates per 100,000 beneficiaries. This calculation was done by determining the size of the population each year from the CMS Medicare Advantage State/County Market Penetration Reports. The utilization rates were calculated by dividing procedure volume by the number (in hundreds of thousands) of beneficiaries each year. Using Medicare's location codes, we determined the places-of-service where both types of drainage procedures were carried out in the final year of the study. Trend lines were plotted from 2001 to 2013. Data analysis was carried out using SAS, version 9.4 for Windows (SAS Institute Inc, Cary, North Carolina).

RESULTS

The total number of abdominal abscesses drained (using both approaches) in the Medicare population increased from 22,214 in 2001 to 34,883 in 2013 (+57%) (Table 2). In 2001, 63% of drainage procedures were accomplished via the percutaneous approach; by 2013, that proportion had risen to 82%. Figure 1 compares the volume trend lines for the two approaches. Percutaneous procedures increased every year, from 14,068 in 2001 to 28,486 in 2013 (+102%). By contrast, open surgical drainages held fairly steady from 2001 through 2004, but afterward began a slow progressive decline. Surgical volume was 8,146 in 2001, decreasing to 6,397 in 2013 (−21%).

The changes in rates per 100,000 were similar to those in volume (Table 2). Between 2001 and 2013, the total abdominal abscess drainage rate (both approaches combined) rose from 63% to 93% (+48%). The rate of percutaneous drainages increased from 40 in 2001 to 76 in 2013 (+90%), whereas the rate of open surgical drainages decreased from 23 in 2001 to 17 in 2013 (−26%).

Among the 14,068 percutaneous drainages carried out in 2001, radiologists performed 12,672 (90%). Among the 28,486 percutaneous drainages in 2013, radiologists performed 27,634 (97%). By 2013, radiologists treated 79% of all abdominal abscesses. In 2013, 83% of percutaneous drainages were performed in hospital inpatient settings, 15% in hospital outpatient facilities, and 2% in emergency departments. During that same year, 94% of surgical drainage procedures were performed in hospital inpatient settings, 5% in hospital outpatient facilities, and the remaining few in emergency departments or private offices.

DISCUSSION

In the years since the techniques of percutaneous drainage were refined and improved during the 1980s, it has become apparent that this approach is the preferred one in cases in which the abscess collection is localized [11-18]. Surgeons themselves have acknowledged this

Table 2. Abscess drainage procedures in the Medicare fee-for-service population in 2001 and 2013

Drainage	Volume			Rate per 100,000		
	2001	2013	% change	2001	2013	% change
Percutaneous	14,068	28,486	+102	40	76	+90
Open surgical	8,146	6,397	−21	23	17	−26
Total abscess	22,214	34,883	+57	63	93	+48

Note: Procedure volumes and rates per 100,000 beneficiaries are shown. The bottom row shows the totals of the two approaches.

Download English Version:

<https://daneshyari.com/en/article/4229919>

Download Persian Version:

<https://daneshyari.com/article/4229919>

[Daneshyari.com](https://daneshyari.com)