

## Letter to editor

# Poroscopy: an important research field in Medicine and Physical Anthropology

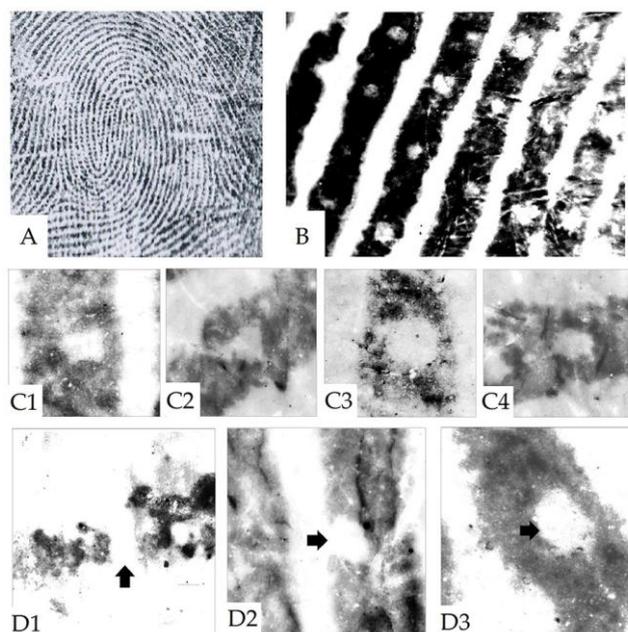
Wijerathne BTB<sup>1</sup><sup>1</sup>Department of Forensic Medicine, Faculty of Medicine and Allied Sciences, Rajarata University of Sri Lanka.**Keywords:** Poroscopy; Fingerprint; Physical anthropology; Medicine**Copyright:**©2015 Wijerathne BTB *et al.* This is an open access article distributed under the [Creative Commons Attribution License](#), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.**Funding:** None**Competing interests:** All editorial decisions regarding this manuscript were taken without the involvement of the editor who is an author of this article.**Received:** 11 November 2015      **Accepted revised version:** 25 November 2015      **Published:** 24 December 2015**\*Correspondence:** buddhikatbw@gmail.com**Cite this article as:** Wijerathne BTB. Poroscopy: an important research field in Medicine and Physical Anthropology. *Anuradhapura Medical Journal* 2015; **9**: 44-46.**DOI:** <http://dx.doi.org/10.4038/amj.v9i2.7594>

Dear Sir,

Fingerprints are the imprints left on any material by the skin over the volar surface of the fingers. They are characterized by alternating strips of raised dermal ridges (cristae cutis) and furrows present in a variety of patterns with minute sweat pores appearing along the surface of the dermal ridges (1, 2). Poroscopy is the specialized study of these smallest anatomical structures (size, shape, type and relative position) (Figure 1) as a means of personal identification.

It has proved to be an extremely valuable tool in forensic science (3–5), anthropological studies (6) and similarly an important component in the modern automated fingerprint recognition system (7). The details of a fingerprint are classified into three different categories. Level 1 includes the basic fingerprint patterns (loop, whorl, arch and accidental) and ridge flow. Level 2 includes Galton characteristics or minute points. Level 3 includes the fine features of a ridge including characteristics of sweat pores (7, 8). Poroscopy comes under the third level details, therefore is considered more accurate and reliable (9, 10). According to Locard the sweat pores present the triple characteristics of immutability, variety and perpetuity, which establish them as a means of personal identification (3, 11).

Fingerprint patterns start to develop between the 5<sup>th</sup> and 6<sup>th</sup> week of gestation, and are fully formed by the 21<sup>st</sup> week (1). Sweat glands start to develop around 14<sup>th</sup> week of gestation and acquire adult morphology by the 24<sup>th</sup> week (12, 13). A pore is an opening of a sweat duct which



**Figure 1 Fingerprints and different characteristics of pores (Digital images taken by digital photomicrography unit Micrometrics™ 318CU 3.1-megapixel 1/2" Optical Format) A: Fingerprint, B: Macroscopic image of pores (80X), C: Shapes of pores (400X); C1=square, C2=triangle, C3=round, C4=oval, D: Types of pores (400X); D1=open on both ends, D2=open on one end, D3= closed**

is originating from sweat glands in the subcutaneous layer of the skin (14).

A limited number of studies have been done on various aspects of poroscopy so far. Marcello Malpighi was one of the first to examine pores with a microscope in 1686 (10, 15, 16). In 1912, Locard established the use of poroscopy in personal identification. He is considered to be the father of poroscopy (10). The sexual dimorphism of characteristics of pores have been evaluated in several studies (11, 17–19). Bindra *et al.* conducted a study to compare the characteristics of pores between inked and latent prints among Indians (17). Nagesh *et al.* evaluated sex differences and influences of persons age on pore characteristics (18). Preethi *et al.* studied pores among South Indians to establish sex differences in frequency, types and shapes of pores (19). Tafazoli *et al.* studied

pores among Iranians to establish the frequency, types, position and shapes of pores (20). These studies provide evidence to support the fact that poroscopy as an important phenotypical trait in anthropological and human anatomical studies. Several studies have revealed that different medical diseases were associated with characteristics of pores and the possibility of using it for the early prediction of later disease occurrence in high risk individuals (21).

It is clear that the scientific study of these important minute anatomical structures might open doors to many scientific discoveries in the fields of Physical Anthropology, Anatomy and Medicine.

### Consent

Fingerprints were obtained from the author's own hands.

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