



## Pacinian corpuscle in human lymph node: a report and the literature review

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Pacinian corpuscle, also known as lamellated corpuscle or Vater-Pacinian corpuscle, is a mechano-receptor sensing rapid vibration, pressure, and coarse touch. It is located predominantly in the dermal and subcutaneous tissues of the skin (mainly non-hairy), and has also been commonly reported in mesentery, nipples, genitals, ligaments, tendons, and periosteum [1, 2]. Rare reports of ectopic Pacinian corpuscle in human beings have described it in the urinary bladder [3], pancreas [4], and prostate [2]. Some authors have also described its unusual presence in human lymph nodes, with a total of 8 cases so far mentioned in 5 reports [1, 5–8] (Table 1). Herein we report the finding of a Pacinian corpuscle in a lymph node, which in our knowledge is the ninth such case so far.

A 42-year-old male underwent composite resection and comprehensive neck node dissection for squamous cell carcinoma of the buccal mucosa. Of the 41 lymph nodes examined, one uninvolved lymph node at level IV, with no relationship to the overlying skin, showed the presence of a Pacinian corpuscle in its hilum and inside the node capsule (Fig. 1a, b). It was seen in close association with small and medium-sized blood vessels. Serial sections revealed multiple unmyelinated axon terminals in the central core, surrounded by inner core lamellae, which was further enveloped by outer core lamellae and capsule (Fig. 1b). Few capillaries were present in the capsule. A small nerve fiber was present within and just outside the capsule, which on serial sectioning was identified as the innervating nerve fiber (Fig. 1b).

All the lymph nodes in 9 incidences, including ours, were free from any pathology, and had the common finding of presence of corpuscles in or near the hilum of the node in close association with blood vessels. Presence of capillaries in the capsule was another common observation, similar to that by Feito et al. [7] in all four cases studied by them. The presence of multiple axon terminals in our case was an unusual finding, however, that has been reported previously in normal human tissues [9].

The function of Pacinian corpuscle in the lymph node is not known; however, various authors have presented their view. Polski and Spreen [6] considered it to be ectopic, while Uguen [8] considered it to be an abnormal cicatrization process, possibly in response to some trauma or other etiology causing local inflammation. Fabian had postulated its relationship with the lymphatic systems in cat [6, 10]. The presence of capillaries in the outer core and capsule has led many to hypothesize their role in vascular regulatory functions [6, 11]. Its presence in the human urinary bladder was thought to be a unique aberration by Landon and Wiseman [3], while its function in the pancreas has been variably postulated as related to regulation of lymphatic or blood flow, exocrine and pancreatic secretion, pressure, and vibration [4]. Considering the number of lymphadenectomies studied by pathologists, the prevalence of Pacinian corpuscle in lymph nodes seems to be very low. The exact prevalence is difficult to establish due to this rarity. Commenting on its function in a lymph node would be mere conjecture.

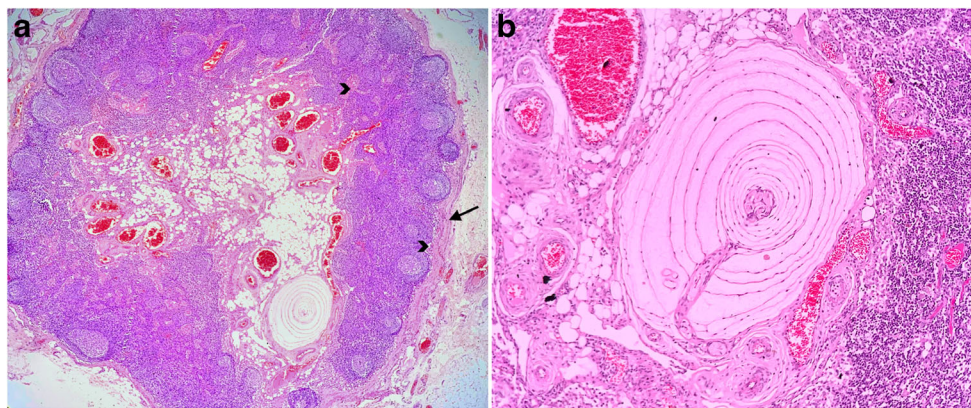
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**Table 1** Literature review for the Pacinian corpuscle in human lymph node (including the present case)

Author	Year	Lymph node location	Number of PC in a single LN	Primary cancer/disease	Hypothesis on function or presence
Nödl (article in German)	1975			Melanoma	
Polski	2005	Inguinal	2	Inguinal lymphadenopathy	Ectopic
Aydin	2006	Pelvic	1	Endometrial adenocarcinoma	None mentioned
Feito	2017	2 inguinal, 1 axillary, 1 cervical	1 in each	Foot melanoma, strangulated hernia (inguinal LN), AIDS and DLBCL (axillary LN), laryngeal SCC (cervical LN)	None mentioned
Uguen	2018	Pelvic	2 PC and 1 small nerve	Prostatectomy (reason not mentioned)	Abnormal cicatrization process
Present case	2019	Cervical	1	Buccal mucosa SCC	(see text)

LN lymph node; AIDS acquired immunodeficiency syndrome; DLBCL diffuse large B cell lymphoma; SCC squamous cell carcinoma



**Fig. 1** Pacinian corpuscle in human lymph node. **a** The corpuscle is seen within a well-defined lymph node tissue, in relation with the hilum. The node capsule (arrow) and sub-capsular and medullary sinuses (arrowheads) can be visualized, hematoxylin and eosin (H&E),  $\times 25$ . **b**

Deeper section showing multiple unmyelinated axon terminals in the central core, surrounded by inner core lamellae, enveloped by outer core lamellae and capsule. An innervating nerve fiber can also be identified, H&E,  $\times 100$

## Compliance with ethical standards

**Conflict of interest** The authors declare that they have no conflict of interest.

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