

Results from an American pilot survey among Scleroderma Clinical Trials Consortium members on capillaroscopy use and how to best implement nailfold capillaroscopy training

Sirs,
Nailfold capillaroscopy (NC) is a well-established technique where the distal nailfold capillaries are evaluated with a magnification device to detect abnormalities in the microcirculation. NC is fundamental in the evaluation of connective tissue disease (CTD), especially Raynaud’s phenomenon (RP) and systemic sclerosis (SSc). Many options exist to assist with visualisation of the distal microcirculation with magnification ranging from approximately x10 to upwards of x300. Commonly used lower magnification devices such as a dermatoscope are low-cost, more readily available, and frequently comparable in usefulness. However, this technique can produce images that are less often classifiable and may underestimate severity of abnormality when compared to the gold standard, nailfold video capillaroscopy (NVC) (1). NVC is performed with a small video camera that attaches to a computer and produces high magnification images that can be stored and analysed electronically. NVC is a more expensive option that can be more time intensive and has a short but steeper learning curve when compared to lower magnification devices. In the United States (US), little is known about the use of capillaroscopy amongst clinicians.

We sent a short survey to gauge the perspectives of US SSc specialists in regard to capillaroscopy use in their daily practice. The survey was sent to 92 US Scleroderma Clinical Trials Consortium (SCTC) members (including non-clinician researchers) and we analysed only those with clinical experience (42/92). Of the clinicians responding, 93% were academic-based and 88% had a dedicated SSc and/or RP clinic. Table I summarises the highlights of the survey.

When in clinic evaluating potential SSc patients, 91% of US SSc experts reported using NC “always” or “most of the time”. Sixty four percent use a dermatoscope or an ophthalmoscope for evaluation of capillaries, 14% a stereomicroscope, and only 7% use NVC. Most physicians reported informal teaching (57%) or being self-educated (17%). ‘Comfort’ with NC was more evenly distributed with 43% “somewhat comfortable” and 31% “very comfortable”. Seventy six percent wanted more formal training and 71% would participate in an online training. Only a third of participants (33%) said they would participate in a 2 to 3 day training in the US and none of the respondents were prepared to attend training in Europe for 2 to 3 days.

Nailfold capillaroscopy examination is a valuable, non-invasive tool to evaluate pa-

Table I. Survey results of US Scleroderma experts (n=42).

Perform capillaroscopy “most” or “all” of the time for scleroderma	91%
Feel “very comfortable” with capillaroscopy	31%
Had informal teaching or were self-educated in capillaroscopy	74%
Desire more teaching in capillaroscopy	76%
Would participate in an on-line curriculum in capillaroscopy	71%
Would attend a 2-3 day course on capillaroscopy in the US	33%

tients for an associated CTD, especially SSc, and has been demonstrated to be a critical tool for the rheumatologist (2-5). Abnormal nailfold capillaries are now included in the most recent SSc classification criteria and help predict underlying connective tissue disease and severity (1, 2, 6, 7, 8). Our data demonstrate almost 75% of US SSc specialists surveyed “always” perform capillaroscopy and nearly the same percentage desire more formal education in NC. It is of note that 74% were taught informally or were self-instructed. This finding underscores the need for formal training for those who care for patients with Raynaud’s phenomenon and SSc-spectrum disorders. It is encouraging to see a recent report of a successful pilot capillaroscopy education project in the one US rheumatology fellowship programme (9).

A significant weakness of this survey includes its limited scope. The respondents were a group of providers with a clinical and academic interest in SSc and, thus, prone to selection bias with regard to interest in more education. Non-clinicians were excluded and influenced our response rate. The findings of the survey may therefore not be generalisable to all US rheumatologists. In summary, we found that most academic US practicing SSc specialists perform NC, rarely NVC, and many feel that more formal instruction in this technique (including online training) is needed in the US.

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References

1. HUGHES M, MOORE T, O’LEARY N *et al.*: A study comparing videocapillaroscopy and dermoscopy in the assessment of nailfold capillaries in patients with systemic sclerosis-spectrum disorders. *Rheumatology* (Oxford) 2015; 54: 1435-42.
2. KOENIG M, JOYAL F, FRITZLER MJ *et al.*: Autoantibodies and microvascular damage are independent predictive factors for the progression of Raynaud’s phenomenon to systemic sclerosis: a twenty-year prospective study of 586 patients, with validation of proposed criteria for early systemic sclerosis. *Arthritis Rheum* 2008; 58: 3902-12.
3. CUTOLO M, PIZZORNI C, SULLI A, SMITH V: Early Diagnostic and Predictive Value of Capillaroscopy in Systemic Sclerosis. *Curr Rheumatol Rev* 2013; 9: 249-53.
4. SEBASTIANI M, MANFREDI A, VUKATANA G *et al.*: Predictive role of capillaroscopic skin ulcer risk index in systemic sclerosis: a multicentre validation study. *Ann Rheum Dis* 2012; 71: 67-70.
5. CUTOLO M, TROMBETTA AC, MELSENS K *et al.*: Automated assessment of absolute nailfold capillary number on videocapillaroscopic images: Proof of principle and validation in systemic sclerosis. *Microcirculation* 2018; 25: e12447.
6. VAN DEN HOOGEN F, KHANNA D, FRANSEN J *et al.*: 2013 classification criteria for systemic sclerosis: an American College of Rheumatology/European League against Rheumatism collaborative initiative. *Arthritis Rheum* 2013; 65: 2737-47.
7. INGEGNOLI F, GUALTIEROTTI R: A systematic overview on the use and relevance of capillaroscopy in systemic sclerosis. *Expert Rev Clin Immunol* 2013; 9: 1091-7.
8. SMITH V, THEVISSSEN K, TROMBETTA AC *et al.*: EULAR STUDY GROUP ON MICROCIRCULATION IN RHEUMATIC DISEASES: Nailfold Capillaroscopy and Clinical Applications in Systemic Sclerosis. *Microcirculation* 2016 Jul; 23: 364-72.
9. HATZIS C, LERNER D, PAGET S *et al.*: Integration of capillaroscopy and dermoscopy into the rheumatology fellow curriculum. *Clin Exp Rheumatol* 2017; 35: 850-2.