

# Cellulitis in Lymphedema is Associated with Dietary: An Observation at Thailand Lymphedema Day Care Center

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## ▲ Background

Among many complications encountered in lymphedema, cellulitis is one of the most concerned. Currently, there is no cure for lymphedema, therefore the prevention of repeated episode of acute subcutaneous tissue inflammations provide a long term resolution for lymphedema cares. It is of great interest to identify potential factors that could decrease or prevent the recurrence or unpredictable relapse of cellulitis among chronic lymphedema. Previous studies reported benefit of dietary control toward LE treatment showing that an improvement of diameter of the affected limb using restricted long-chain triglycerides, low-fat, and weight-reduction diets (1, 2).

## Objectives

The purposes of this study were to a) explore the association between dietary and complications in lymphedema focusing in subcutaneous tissue inflammation, b) iden-

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tify the prevalence of cellulitis, c) demonstrate the significance of high sensitivity C-reactive protein (hsCRP) levels and dietary habit in predicting incidence of cellulitis in patients with lymphedema, d) identify the independent risk factors for cellulitis in lymphedema and e) demonstrate the ethnology of recurrent cellulitis.

## Patients and Methods

During 24 months period from Nov 2009 to Sep 2011, a total of 1,549 patients were diagnosed at the Center. By respective inclusion criteria of three sub-studies, 103 new patients were recruited for a cross-sectional analysis (3), 358 medical records were subject to a case-control study (4), and two patients provided detailed history for a clinical case report (5). Demographic, medical data and food ingestion were assessed using case record format and tested seven-day Food Frequency Interviewed Chart (FFIC). Serum hsCRP was investigated. Descriptive



Fig. 1: Cellulitis in secondary (a) and primary (b, c, d) lymphedema is basically aseptic which may emerge as a simple form of subcutis inflammation in one (a, thigh) or multiple (b, thigh, leg, and ankle) segment, or as a mixed complication with dripping lymphorrhea from cutaneous papillomatous eruption (c) or erosive epidermolytic lesion (d).

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statistic, univariate, bivariate, and multivariate analyses were performed using statistical package software.

## Results

There were 18.4% who reported food induced complications experiences (FIE). The most reported signs and symptoms were related with subcutaneous tissue inflammation. The prevalence of cellulitis in general was 47.6%. Levels of hsCRP ( $p=0.003$ ), having meals with deep fried food more than once a day ( $p=0.044$ ), consumption frequency of animal-based diet more than vegetable products in lymphedema aged lower than 55 years old ( $p=0.048$ ), and being female ( $p=0.025$ ) were statistically associated with cellulitis. Multivariate analysis indicated the percentage difference in circumference of the limb (adjusted odds ratio (AOR)=1.07, 95% confidence interval (CI) =1.04~1.10), primary lymphedema diagnosis (AOR =3.36, 95% CI=1.37~8.22), FIE (AOR=6.82, 95% CI=2.82~16.51) and systolic blood pressure (AOR=1.02, 95% CI=1.01~1.04) were risk factors for cellulitis. No association was observed with hypertension, diabetes mellitus, body mass index and the duration of disease burden. The ethnology of recurrent cellulitis related with animal-based diet was confirmed by two case reports, a distinct improvement was observed in the patient who followed the dietary advice for 6 months.

## Conclusions

Our data support the notion that dietary intake could be an important precipitating factor of subcutaneous tissue

inflammation. We therefore suggest that the awareness in daily food intake in lymphedema should be raised among health care provider and patients. Dietary guideline of how to limiting meat and fat consumption should be created.

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