Editor's note

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For interest sake, concluding pages of articles may contain “newsy” items of the original date.

Gilbert E. D’Alonzo, DO, July 2001

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Soft Tissues in Areas of Osteopathic Lesion

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The discovery and development of osteopathy, like many useful clinical methods, required first, the logical assumption that under certain circumstances certain biological characteristics should exist (in this case a realization that mechanical structure is related to function) and, second, the observation that characteristic palpable changes in mechanical structures apparently accompany and influence functional and organic disease.

This paper deals with the examination and analysis of the palpable changes, in areas of osteopathic lesion, which occur in the overlying and supporting tissues of joints, which affect the positional and motion characteristics of joints, and which are used for the purpose of reaching a diagnosis and an outline of therapy.

In approaching this subject it is wise to recognize, at the outset, certain facts which have a direct bearing on these changes. Most important of these is that the joint changes which Still described originally are recognized and used daily by osteopathic physicians and, to a limited degree, by a few nonosteopathic physicians. Next is the fact that the joint changes under dissection are exceedingly complex and to date have largely defied classification and precise measurement; and finally, that although there has been considerable speculation, the actual mechanics of the relationship between these joint changes and clinical symptoms and disease are not known.

The reason that tissue changes are of great importance is because they indicate the location, extent, severity, and progress of malfunctions which involve not only the joints to which they are attached but other organs and tissues as well. These changes apparently involve the skin, subcutaneous tissues, fascia, muscle, and the attachment of muscle and fibrous elements to periosteum and to bone. They may be either functional or organic, or both in lesion areas of some duration.

The evidence that these changes are functional lies in the fact that they may be altered within short periods; it is secured subjectively by patients’ comments and objectively by palpation findings. When these changes are alleviated by therapy patients report decreases in pain or discomfort, greater ease of movement, increase in the sense of well-being, etc. While techniques and methods for quantifying such observations are still not satisfactory this fact does not invalidate the fact that patients report improvement concurrent with decreases in soft tissue abnormality.

Subjectively, careful palpation reveals marked changes in tissue texture in either the direction of improvement or of regression to greater abnormality. The latter is dramatically illustrated by the increase in extent and degree of tissue abnormality which occurs in unsuccessful attempts to use the heel lift therapy. In a matter of a few hours after a change in weight-bearing stresses has been produced by a lift the tissue abnormality may become more severe and may extend over a greater area.; at the same time the patient reports an exacerbation of symptoms. Although such palpation findings are, of course, subject to the interpretation and evaluation of the examining physician and although this method does not permit precise quantitation, they are valid and establish the point that alterations in tissue texture are not organized to the point of being static.

Organic changes occur not only in the soft tissues mentioned above but in bone as well. The latter occurs in the form of stress deformities and is typified by
the wedging of vertebral bodies which is a part of many long-standing spinal curvatures. Since bone changes must be examined by x-ray they will not be discussed in this paper. As regards the organic changes in soft tissues, there is much speculation as to their exact nature and to the degree to which they are reversible. Certainly fibrous adhesions and bands may be found in bowel and probably torn. In contrast to functional changes, organic changes are altered more slowly. However, except for the time differential, the improvement or regressiveness of the repar is somewhat similar and may be detected by palpation.

Classification of Tissue Changes.—The fact that there are almost as many descriptions of tissue abnormalities in lesion areas as there are osteopathic physicians is evidence that the abnormalities do not fall into sharp and easily differentiated classifications. In addition, it is often one of the changes in the muscle component of the lesion8 9 has been objectively studied.1 However, certain generalizations based on physical findings alone, can be made. One of the fairly common classifications is one which divides lesions into three groups, acute, subacute, and chronic. In gathering material for this paper the writer has re-examined his experiences with this classification in view. In re-evaluating the palpable changes and the response to palpation pressure it seems that acute lesions feel as though moderate amounts of air had been injected into the tissues; they are characterized by a doughy, boggy texture, with considerable hyperesthesia evidenced, and by a decrease in ease and freedom of joint movement. Frequent presence of abnormal hardness and rigidity, a comparative absence of hyperesthesia, and a decrease in total motion rather than a loss of ease and freedom of movement. The subacute division seems to fall in between the acute and chronic. Actually it seems that long-standing subacute lesions, at different times, are first in one group and then in the other. Henceforth in this paper lesion areas will be referred to as acute, subacute, and chronic.

Significance of Soft Tissue Changes.—As has been stated, changes in the texture of the supporting tissues of joints are of great importance. This is because the condition of the tissue is controlled not only by the state of the joints to which they are attached but by all the various motor elements in the vegetative and central nervous systems, and because the latter have physiologic connections with, and are influenced by, both the external and internal environments of the organism.

From the practical standpoint this means that, in osteopathic diagnosis, the texture of the paravertebral tissues provides an index, not only of the joints themselves but of distant influences as well; that the presence of abnormal tissue texture must be evaluated in view of all factors which might account for it. This is somewhat in contrast to earlier views, held by many of us, which placed a major emphasis on positional and weight-bearing stresses. The latter continue to be significant, of course, but results of tissue study indicates that now they are at least equalled in importance by evaluation of the supporting tissues.

Lesion Patterns.—As stated under classification, osteopathic lesions are not easily set apart into groups. However, there are certain types of conditions in which definite patterns may be identified.

Acute Infections.—In all acute bacterial or virus infections there are pathologic changes in the tissues and, at times, also in those of the appendages. Characteristic are acute in character. The skin and superficial tissues seem tense—almost spongy, the muscles are hard and rigid and there is a marked restriction in the range of motion beyond the palpable changes are altered more slowly. However, except for the time differential, the improvement or regressiveness of the repar is somewhat similar and may be detected by palpation.

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The causative factor of the lesion in analysis of these cases. As a result of osteopathic manipulative treatment some patients showed permanent improvement in tissue abnormalities (and in symptoms), some temporary, and some no improvement. The very demonstration, however, of recurring or persistent soft tissue changes indicates that there are actual etiological factors (despite their obscurity) and that these patients are not simply imitating their complaints.

As will be indicated in the next section, the observation of widespread subacute and chronic tissue changes, out of all proportion to any demonstrable mechanical difficulty, indicates the presence of factors which are constitutional and of long standing.

**Thyroidosis.**—As might be expected in a disease which is characterized by a heightened irritability of the nervous system there are widespread acute and subacute lesion manifestations in the paravertebral and, at times, in the appendicular tissues. There is considerable hyperesthesia and reflex thresholds are greatly lowered. In this condition the decision of whether to employ conservative or surgical management is difficult to make except, of course, in those cases where the patient’s general condition demands surgery as soon as proper preparatory measures can be taken. The decision concerning management is greatly facilitated by the careful evaluation of soft tissues following manipulative treatment plus supporting measures such as bed rest, high caloric diet, etc.

Three cases will illustrate this point. Two adult patients in their thirties had basal metabolic rates, at various tests, of between +30 and +40. Both had pulse rates which did not get below 110 at rest. Both had good nutrition despite small weight losses. In each the most pronounced lesion pathology involved the lower cervical and upper thoracic segments although the entire vertebral column was involved to some degree. They were placed at bed rest and given daily manipulative treatment designed to articulate, with slowly applied and released forces, the entire vertebral column. Within a few days there was symptomatic improvement and a decrease in the intensity of the lesion pathology. As improvement in the soft tissues occurred manipulative treatment was increased in extent and increased in frequency. The gradual soft tissue improvement was the finding on which the extent of bed rest and the ultimate decision not to use surgical treatment was based. These patients were seen for occasional treatment after the basal metabolic and pulse rates returned to normal.

The third case was one in which the patient could not stop work until, despite great determination, he simply could not push himself through a day’s work. Clinical findings were exophthalmos, rapid pulse, loss of weight, tremor, venous tinnitus, insomnia, and profound exhaustion. (Exact data on pulse, the basal metabolic rate, etc., are not available but the patient is a physician and there is no question as to the diagnosis of advanced thyroidosis.) He also had a deep and intense ache centering in the regions of the angles of the second and third ribs on the left side. This ache was in direct proportion to fatigue and to the rapid pulse, being great when the latter factors were marked. A thyroidectomy was performed and an entire return to health followed with the patient returning to his former robust state. About 5 years after the thyroidectomy three of his symptoms began to return (without the basal metabolic rate going above +14). They were the ache at the second and third ribs, the insomnia, and the tachycardia in a mild form. The writer saw the patient at this time. There was an almost complete absence of lesion pathology except in the upper thoracic vertebral and rib joints on the left side. In these areas, however, there was marked acute lesion pathology. Osteopathic manipulative therapy was followed by marked alleviation of the soft tissue abnormality and complete elimination of the symptoms. The patient was seen periodically by the writer for a 6-year period during which time there were no recurrences of the signs.

**Other Constitutional States.**—There is a number of diseases, with widespread effects, such as the malignancies, cardiac disease, chronic pulmonary disease, meningococcal types of meningitis, diabetes, etc., which reflect certain changes in the paravertebral tissues. However, they are not sufficiently distinct, or well enough understood, at least by the writer, to warrant discussion at this time.

**Localized Lesion Pathology.**—At the outset of this section it may be recognized that human beings, from “ben agers” on up, who are completely free from at least minor lesions are as rare as those who are free from dental caries. This observation is paralleled by the studies reported at the White House Child Health Conference of 1951, where, with methods which completely missed all weight-bearing stresses except those sufficiently gross to be reflected in body contours, poor body mechanics was noted in over 90 per cent of the children and young adults examined.

Fortunately, the adaptive and protective mechanisms, which are fundamental biological traits, permit normal function despite a certain amount of pathological influence. This statement has great significance in the evaluation of the paravertebral tissues since it permits an understanding of the reason for certain clinical observations. They are: (a) That lesions exist without causing clinical abnormality; (b) that when lesion pathology exceeds the limits of adaptation it is not necessary to return the joints to an absolute normal; but merely to return it to within those limits; (c) In a given case the location and alleviation of the essential etiological factor will be adequate to secure a satisfactory clinical result even though a certain degree of lesion persists.

**The Etiology of Localized Pathology.**—Localized
SOFT TISSUES IN AREAS OF LESION—DENSLOW

In each of these three cases there were two important etiological factors. In two of them an articular lesion, identified positively by local abnormalities in the texture of the tissues, coexisted with a distant abnormality. In each of the latter the effect of manipulative therapy was temporary due to the failure to eliminate all the articular pathology and to the persistence and severity of the distant etiological factor. The obvious conclusions to be drawn from these observations are: (a) That such articular disturbances are of sufficient standing to require considerable therapy; (b) the improvement is gradual and not the result of a complete elimination or "correction" of the pathological findings at each treatment, with a recurrence after each treatment; and (c) that the lesion apparently exerts a localizing effect in cases where there is a pathologic influence affecting the whole organism. In the latter two cases this is quite apparent. The importance of psychic trauma and of a major weight-bearing abnormality is obviously great and significant of the fact that local lesion changes coincident with the patient’s symptoms must be recognized.

Progress of Tissue Changes.—We have demonstrated in the laboratory that such almost insignificant procedures as lightly tapping a patient on his shoulder may reduce the spinal cord irritability to a great degree in a fraction of a second and that flattulence from an excessively large meal causes reflex muscle contraction which is promptly relieved by a substantial decrease in the size of the gastric air bubble. Consequently, it is obvious that tissue abnormalities may change, in extent and degree, at a very rapid rate. These facts indicate that the treatment of such joint changes must be subject to constant and instantaneous control. From the standpoint of osteopathic technic this means: (a) That a structure under treatment must be re-evaluated every few moments to determine the effectiveness of the forces being applied, and (b) that the use of routine manipulation without an understanding of the functional and organic changes involved is not of questionable value but may result in actual harm to the patient.

**SUMMARY**

1. Analysis of the soft tissue coverings and support of joints is an important factor in osteopathic diagnosis.

2. Location, extent and severity of soft tissue abnormalities may be identified by palpation.

3. Soft tissue changes in an area of lesion reflect the level of irritability of certain spinal reflex arcs.

4. Soft tissue pathology reflects the influence not only of the joint to which the tissue is attached but of distant organs and tissues as well.

5. Improvement or regression in the patient’s clinical condition frequently may be predicted by an analysis of the texture of the tissues overlying and supporting the joints.

6. Manipulative treatment should be controlled by a constant evaluation of the texture of the tissues being treated.

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**REFERENCES**


