**On Which Side of the Breast is Arakawa's Reaction More
Frequently Negative in the Same Lactating Woman ?
(A Preliminary Note).**

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By

Kyohachi Yoshino.

(芳野 京八)

*(From the Department of Pediatrics, Faculty of Medicine, Tohoku
Imperial University, Sendai. Director: Prof. A. Sato.)*

Is Arakawa's reaction of human milk in one and the same woman more frequently negative on the right breast or on the left? The present paper is only a preliminary note, because, though the materials* used here were about 1000 in number, there were only a few cases suitable for the purpose.

Arakawa's reaction is usually more or less similar in intensity on both sides of the breast. There are, however, exceptional cases in which milk from one breast is very different from that from the other,—in which milk from one is completely or almost completely negative to Arakawa's reaction, while milk from the other breast is strongly or normally positive or, if it be one of intermediate reactions, of some intensity (Cf. Table).

From the fact that the negative side milk is mostly more like Arakawa-negative milk as regards the amounts of chemical ingredients,¹⁾²⁾³⁾ we can reasonably assume that such a milk—milk from a different side with very different reaction—will be from a lactating body already in a state of B₁-avitaminosis. Now if such a milk is from a B₁-avitaminotic body, then why is it that a more or less "good"

* Besides my own, those examined by Ishii,¹⁾ by Kurosawa²⁾ and Sugihara (Tohoku J. Exp. Med., 1938, **33**, 558.) were used.

1) M. Ishii, Tohoku J. Exp. Med., 1937, **31**, 580.

2) T. Kurosawa, Tohoku J. Exp. Med., 1937, **31**, 106.

3) Ky. Yoshino, Tohoku J. Exp. Med., 1937, **31**, 287.

Nakamura,⁵⁾ Yanagisawa⁶⁾ and Kubo,⁷⁾ due much more frequently to the paralysis of the left recurrent nerve than of the right. Koyama saw this difference also in his animal experiment. And he also attributed the cause to the severer affection of the left recurrent nerve to its peculiar anatomical position, as opposed to that of the right nerve. I shall not enter into details concerning this opinion of his.

As above stated, some lactating women secrete milk of very different Arakawa's reaction from their two sides of the breast. Intercostal nerves (including vegetative nerves) may well be almost symmetrical on both sides, at least as far as nerves of mammary glands are concerned. Now, it was interesting to me to investigate on which side breast Arakawa's reaction is more frequently negative in these lactating women with very different Arakawa's reaction on different breast, because, if the result was such as will show a prevalence of negative Arakawa's reaction on the left breast, then the cause of the more frequent affection of the left recurrent nerve might have a different explanation.

As stated above, the materials used in the present paper were about 1000 in number. But I was able to collect only 24 cases with remarkable difference of Arakawa's reaction on different breasts. As already explained, the 24 cases shown in the accompanying table were those mothers with either normal reaction or a rather strong reaction among intermediate reactions on one breast, and with completely or almost completely negative reaction on the other. Among these 24 mothers, 11 cases were negative on the right breast and in the remaining 13 cases the left side milk was negative. The number was small in all, and it is more proper to conclude that in those mothers with very different Arakawa's reaction on different sides of the breast, half the cases were negative on one side and the balance on the other, rather than that a larger number of the cases were negative on the left. In a further 156 cases with a moderate difference of the reaction, just half the cases (78 cases) were more strongly negative*** on the left and the other half on the right.

The above described result will show that milk secreting nerves may be differently affected according to the different side of the breast in the case of avitaminosis B₁, but it seems to me that there is no

5) Y. Nakamura, Dainippon Zibinokakai Kaiho, 1915, 21, 1153.

6) T. Yanagisawa, Dainippon Zibinokakai Kaiho, 1931, 37, 543.

7) E. Kubo, Tokyo Izishinshi, 1921, No. 2209, 66.

*** Though the expression may not be appropriate.

tendency of the prevalence of the right or left side affection. The right side will be equally frequently affected as the left, though the preponderance may of course individually be different.

The cases may be still too small in number to be conclusive; the present paper is a preliminary report. But the above conclusion is interesting to me, if (probably) symmetrical nerves of mammary glands and asymmetrical recurrent nerves are taken into consideration.

Summary.

In 24 cases of lactating women with very different Arakawa's reaction on different sides of the breast, there is no prevalence of negative reaction on the right or left side.