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# A NOTE ON PSEUDO-UMBILICAL SUBMANIFOLDS WITH M-INDEX 1 AND CODIMENSION 2 IN EUCLIDEAN SPACES

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In the proof of the case $k_2 \neq 0$ of Theorem 3 in [2], the author made a mistake by using the Gauss' lemma. In this note he will show that the same results holds.

We rewrite the related part of the theorem.

THEOREM. *Let $M^n$ $(n \geqq 3)$ be an n-dimensional submanifold in $(n+2)$-dimensional Euclidean space $E^{n+2}$ which is pseudo-umbilical and of M-index 1 and whose second curvature is not zero everywhere. Then $M^n$ is a locus of a moving $(n-1)$-sphere $S^{n-1}(v)$ depending on a parameter v such that the radius is not constant, the locus of the centor has the tangent direction orthogonal to the tangeht space to $M^n$ at the corresponding point and intersects obliquely the n-dimensional linear subspace containing $S^{n-1}(v)$, and $S^{n-1}(v)$ is umbilical in $M^n$.*

*Proof.* Using the notations §§1, 2 in [2], let $k_1(p)$ and $k_2(p)$ be the first and second curvatures at $p$ of $M^n$ in $E^{n+2}$. Let $\psi$: $M^n \to E^{n+2}$ be the mapping defined by

$$q = \psi(p) = p + \frac{1}{k_1(p)} \bar{e}(p), \tag{1}$$

where $\bar{e}(p)$ is the mean curvature unit vector at $p$. Making use of the frame $(p, e_1, \cdots, e_{n+2})$ such that

$$\omega_{in+1} = k_1 \omega_i, \qquad \omega_{n+1, n+2} = k_2 \omega_n, \tag{2}$$

where $k_1 \neq 0$, $k_2 \neq 0$ by the assumption. Differentiating the second of (2) and using them and the structure equation of $M^n$, we get

$$d\omega_n = -d \log k_2 \wedge \omega_n, \tag{3}$$

which shows that the Pfaff equation

$$\omega_n = 0 \tag{4}$$

is completely integrable. Let $Q(v)$ be the integral hypersurface of (4) depending on a parameter $v$. Then, we put

$$\omega_n = f dv, \tag{5}$$

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