Significance of *Erwinia* in the Vagina as Causative Agents of Urinary Tract Infections

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UMENAI, T., SAITOH, Y., TAKANO, S., SHOJI, E., TANAKA, K. and ISHIDA, N. *Significance of Erwinia in the Vagina as Causative Agents of Urinary Tract Infections*. Tohoku J. exp. Med., 1979, 129 (1), 103-104 — The isolation of *Erwiniae* from the vagina became positive just before the occurrence of erwiniuria. It is proposed that the appearance of *Erwiniae* in the vagina is an important indicator in the prediction of urinary tract infection by *Erwiniae*.
——— *Erwinia*; bacterial infection

The isolation of *Erwiniae* species, well known plant pathogens, from human sources has been reported by several authors (Slotnick and Tulman 1967; Gilardi et al. 1970; Meyers et al. 1972). *Erwiniae*, isolated in pure culture from brain abscesses and blood, clearly suggest their definite pathogenicity in man. However, it is still not clear whether *Erwiniae* are a permanent or a transient part of the normal human flora or how they cause infection. The possible roles of certain bacteria, occasionally colonizing in the vagina, as the causative agents of urinary tract infections in women, have already been reported (Stamey 1972). This study was designed to examine the occurrence of *Erwiniae* in the vaginas, feces and throats of three female patients in relation to the manifestation of erwiniuria. Two of the patients in whom erwiniuria was observed had been hospitalized with uterus cancer and the third with acute myeloid leukemia. The appearance of erwiniuria was observed while patients were undergoing antibiotics treatment for the urinary tract infections caused by other bacterial species such as *Klebsiella* or *E. coli*. The isolation of *Erwiniae* from the vaginas became positive in all three cases just before the appearance of erwiniuria and erwiniuria lasted from 1 to 3 weeks. However, the isolation of *Erwiniae* from the vaginas became negative while erwiniuria still continued, suggesting that *Erwiniae* isolated from the vaginas were not contaminants from the urine. All the cultures made with the throats and feces of the patients were negative for *Erwiniae*. These results are in accord with those of Stamey (1972) who reported the intimate relationship between the colonization of certain bacteria in the vaginas and the occurrence of urinary tract infection caused by the bacteria. Thus, it seems that *Erwiniae* colonizing in the vagina could be the causative agents of urinary tract infections, although it is still unclear how they invade and become localized within the vagina. Isolated *Erwiniae*, which were short gram negative fermentative bacilli that formed yellow pigmented colonies, were referred to the Department of Bacteriology, Tohoku University School of Medicine for confirmation. All *Erwiniae* specimens isolated were identified as *Erwinia herbicola* and were found to be resistant to various synthetic penicillins, cephalosporines and kanamycin but were sensitive to kanamycin derivatives and colistin.

The circumstances involved here (i.e. aged patients with uterus cancer or leukemia

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TABLE 1. Summary of female patients with erwinuria

Patient	Age	Diagnosis	Source of culture	Examination of <i>Erwinia</i> *				Clinical course
1 (H.S.)	66	Uterus cancer	Urine	<i>Klebsiella</i> $2 \times 10^7 \dagger$	<i>Erwinia</i> 3.3×10^7	<i>Erwinia</i> 1×10^8	<i>Erwinia</i> 1×10^8	Died
			Vagina	+	+	+	—	
			Feces	—	—	—	—	
			Throat	—	—	—	—	
2 (K.K.)	69	Uterus cancer	Urine	<i>Klebsiella</i> 2.8×10^7	<i>E. coli</i> 1×10^4	<i>Erwinia</i> 2.1×10^7	<i>Erwinia</i> 7.3×10^4	Recovered
			Vagina	—	+	+	—	
			Feces	—	—	—	—	
			Throat	—	—	—	—	
3 (K.O.)	62	Acute myeloid leukemia	Urine	ND§	<i>Klebsiella</i> 1×10^6	<i>Erwinia</i> 4×10^6	<i>Erwinia</i> 3×10^4	Recovered
			Vagina	ND	+	+	—	
			Feces	ND	—	—	ND	
			Throat	ND	—	—	ND	

* Specimens were examined for the presence of *Erwinia* at intervals of 1 to 2 weeks.

† Numbers of bacteria per ml of urine.

‡ Positive (+) or negative (—) in *Erwinia* culture.

§ Not done.

undergoing treatment with antibiotics or immunosuppressive drugs) suggest that *Erwiniae* infection in human is opportunistic. Also it appears that the isolation of *Erwiniae* from the vagina is an important indicator in the prediction of the occurrence of urinary tract infection by *Erwiniae*.

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