

## MINOCYCLINE INSTILLATION FOR LYMPHORRHEA AFTER EXTRAPERITONEAL PELVIC LYMPHADENECTOMY

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We managed four cases of lymphorrhea after extraperitoneal pelvic lymphadenectomy by means of minocycline instillation into the cavity around the drainage tube. Two patients had concomitantly undergone cystectomy and one prostatectomy via the extraperitoneal approach. In all four cases, the lymphorrhea markedly subsided, which dramatically shortened the duration of drainage. No side effects occurred. These findings indicate that minocycline instillation is an efficacious treatment for lymphorrhea.

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**Key words:** Minocycline, Lymphorrhea, Extraperitoneal lymphadenectomy

### INTRODUCTION

Extraperitoneal pelvic lymphadenectomy occasionally results in lymphorrhea or a lymphocele because of a lack of peritoneal absorption of lymphatic fluid<sup>1)</sup>. Although meticulous ligation of the transected lymphatic channels decreases the likelihood of lymphatic complications, lymphorrhea or a lymphocele occur at low rates<sup>2-4)</sup>. In general, lymphorrhea does not develop if drainage is not implemented. However, pelvic drainage is customary after extraperitoneal cystectomy or prostatectomy with concomitant lymphadenectomy. If the lymphatic discharge does not decrease, the drain is vainly left in place, and its inadvertent removal can lead to an infection-prone lymphocele.

Recently, percutaneous instillation of tetracycline was reported to be effective for lymphocele<sup>5)</sup>. We describe successful management of lymphorrhea through minocycline instillation.

### MATERIALS AND METHODS

Over the last three years, we treated four patients who developed lymphorrhea after lymphadenectomy with or without extraperitoneal surgery (Table). The incidence of lymphatic complication related to extraperitoneal lymphadenectomy for urologic cancers was 8.2% in our institution. The patients were all male, 66 to 77 years of age (mean, 72.5±5.4 years). Cystectomy with cutaneous ureterostomy was performed concomitantly in two cases of bladder cancer, and prostatectomy in a case of

Table Efficacy of minocycline instillation for lymphorrhea

Case	age	concomitant surgery with lymphadenectomy	duration of lymphorrhea (days)	mean amount of lymphorrhea (ml/day)	cavity (ml)	dose of instilled MINO† [mg/ml(times)]	side effect		mean amount of lymphorrhea after MINO (ml)	days before lymphorrhea < 10 ml
							pyrexia	pain		
Case 1	77	cystectomy	38	260±94	50	100/20 (1)	—	—	35±29	5
Case 2	66	none	29	159±69	30	100/20 (1)	—	—	< 10	1
Case 3	77	cystectomy	62	—†	5	100/20 (1)	—	—	< 10	1
Case 4	70	prostatectomy	19	238±53	5	100/20 (2) 100/10 (1) 100/ 5 (1)	—	—	0	0

† : not measured  
‡ : Minocycline

prostatic cancer. Another patient with prostatic cancer underwent only staging lymphadenectomy.

A solution of 100 mg of minocycline dissolved in normal saline was instilled through the drainage tube. Lymphorrhea was evaluated before and after minocycline instillation.

### RESULTS

Lymphorrhea in daily volumes of 159 to 260 ml had persisted for 19 to 62 days after surgery. According to measurement of creatinine in discharge, there was no urinary leakage in any case. The roentgenography showed the cavities to be 5 to 50 ml in size. Initially, 100 mg of minocycline in 20 ml of normal saline was administered. In case 1, the discharge volume decreased gradually, taking 5 days to fall to less than 10 ml. In cases 2 and 3, the discharge declined to less than 10 ml in only one day. In case 3, a gauze drain had been inserted immediately after the instillation. In case 4, lymphorrhea did not subside despite instillations of 100 mg of minocycline, twice in 20 ml and once in 10 ml saline. The drain was finally removed after the last instillation of the drug in 5 ml. The drain wound closed without delay, and neither infection nor lymphocele developed. None of our four patients experienced fever or pain. The mean daily volumes of lymphorrhea after minocycline instillation ranged from 0 to 35 ml, the drains were removed 0 to 8 days after minocycline administration.

### DISCUSSION

Locally introduced, highly concentrated minocycline induces local inflammation. Utilizing the sclerosing effect, minocycline has been used in the management of renal cysts and hydroceles<sup>6,7)</sup>. We found that the effect of minocycline for lymphorrhea was dramatic. Although in one case the fluid volume did not drop to less than 10 ml until the fifth day, two patients' lymphorrhea fell to this minimal volume within 24 hours. In case 4 the cavity was very

small; the copious discharge washed out the drug, and four instillations were required to stop the lymphatic outflow. The relatively short time that the drug was in contact with the injured lymphatic channels is thought to have cured lymphorrhea. If the cavity is small, it might well be possible to remove the drain straight after the instillation of minocycline. It is known that povidone-iodine<sup>8)</sup> or tetracycline<sup>5)</sup> could obliterate lymphoceles through their sclerosing action. We believe that minocycline instillation is a very safe and efficacious means of managing lymphatic complications of extraperitoneal lymph node dissection.

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和文抄録

腹膜外的骨盤リンパ節郭清後のリンパ漏に対する  
ミノサイクリン注入療法

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腹膜外的骨盤リンパ節郭清後発生したリンパ漏の4症例に対し，ドレーンからミノサイクリンを注入し治療した。4症例のうち2症例は同時に膀胱全摘術を，1症例は前立腺全摘術を施行した。4症例すべてにおいてリンパ漏は著明に改善し，以後のドレーン留置期

間を短縮できた。副作用は生じなかった。ミノサイクリン注入は，リンパ漏に対し有効な治療であると思われる。

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