

ACUTE EPIDIDYMO-ORCHITIS WITH ABSCESS FORMATION DUE TO *PSEUDOMONAS* *AERUGINOSA*: REPORT OF 3 CASES

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We report 3 patients with acute epididymo-orchitis with abscess formation due to *Pseudomonas aeruginosa*, which is relatively unusual and difficult to treat. All patients presented with swollen testicles, pain and high fever. First, they were treated empirically with several antibiotics. After several weeks of antibiotics therapy, the swelling of scrotum still persisted. In one patient, dark yellow pus drained from a fistula of the scrotum. Finally, an orchiectomy was performed on all patients. During the operation, an abscess was found in each testis. Each culture of the pus yielded *P. aeruginosa*, which is susceptible to many antibiotics.

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Key words: Epididymo-orchitis, *P. aeruginosa*

INTRODUCTION

Pseudomonas aeruginosa is a relatively infrequent cause of acute epididymo-orchitis. The incidence among all cases of acute bacterial epididymitis has been reported to be between 5 and 14%^{1,2)}. Here, three patients with acute epididymo-orchitis with abscess formations due to *P. aeruginosa* are reported.

CASE REPORT

Case 1

A 50-year-old man presented with right testicular swelling and high fever. His medical history included diabetes and rectal carcinoma (stage II). On physical examination, he was febrile with a temperature of 37.6°C. His right scrotum was warm, swollen and erythematous. The right spermatic cord was also warm and swollen. Routine blood studies disclosed a cross-reacting protein value (CRP) of 15.6 mg/dl, while blood cell count (WBC) of 18,600/mm³ and glucose of 311 mg/dl. A urine analysis revealed pyuria. Urine cultures were negative. First, he was diagnosed with acute epididymitis and treated empirically with piperacillin (PIPC) (2 g/day) and isepamicin (ISP) (400 mg/day) intravenously. Although he became afebrile after 6 days of antibiotics therapy, the erythematous swelling of the scrotum persisted. Ultrasonography showed a hypoechoic area in the right testis. This hypoechoic area suggested an abscess or a testicular tumor. An orchiectomy was performed on the 25th day after starting antibiotics therapy. During the operation, abscesses were found in the right testis and epididymis. Pus cultures yielded *P. aeruginosa*, which was susceptible to many kinds of antibiotics excluding cefmetazole (CMZ), ampicillin (ABPC) and flomoxef (FMOX). Histologically, most of the

testis and epididymis showed extensive necrosis and severe infiltration of many inflammatory cells.

Case 2

A 63-year-old man presented with high fever, swollen right scrotum and pain. He was treated with antibiotics therapy in another hospital 3 weeks before being admitted to our hospital. On physical examination, he was febrile with a temperature of 38.5°C. His right scrotum was warm, swollen, erythematous and fissured. Dark yellow pus drained from the fistula. Routine blood studies disclosed a CRP of 2.3 mg/dl and WBC of 10,300/mm³

A urine analysis revealed pyuria. Urine cultures were negative. Ultrasonography showed a hypoechoic area in the right testis. He was treated empirically with PIPC (2 g/day) intravenously. After 7 days of antibiotics therapy, the swelling of the right scrotum persisted and dark yellow pus continued to drain from the fistula. A right orchiectomy was performed on the 9th day after starting antibiotics therapy. During the operation, abscess formations were found in the right testis and epididymis. Pus cultures yielded *P. aeruginosa*, which was susceptible to many kinds of antibiotics excluding erythromycin (EM). Histologically, most of the testis, epididymis and scrotum showed severe infiltration of many inflammatory cells and extensive necrosis.

Case 3

A 67-year-old man presented with left testicular swelling, pain and high fever. His medical history included apoplexy. For the preceding 2.5 years, he had required long-term catheterization because of urinary retention. On physical examination, he was febrile with a temperature of 37.8°C. His left scrotum was warm, swollen and erythematous, and the left spermatic cord was also warm and swollen. Routine blood studies disclosed a CRP of 18.9 mg/dl

Table 1. List of case reports of acute epididymo-orchitis with abscess formation

No.	Author	Year	Age	Side	Clinical Isolates	Treatment
1	Inui, et al.	1980	—	—	—	—
2	Inui, et al.	1980	—	—	—	—
3	Sakai, et al.	1983	45	Rt	<i>E. coli</i>	Orchiectomy
4	Sakai, et al.	1983	68	Rt	—	Orchiectomy
5	Oomura, et al.	1985	21	Lt	—	Orchiectomy
6	Takamizawa, et al.	1986	23	Lt	<i>E. coli</i>	Orchiectomy
7	Numa, et al.	1987	32	Rt	<i>E. coli</i>	Orchiectomy
8	This case	1998	50	Rt	<i>P. aeruginosa</i>	Orchiectomy
9	This case	1998	63	Rt	<i>P. aeruginosa</i>	Orchiectomy
10	This case	1998	67	Lt	<i>P. aeruginosa</i>	Orchiectomy

Table 2. List of sensitivity to antimicrobial agents

Antimicrobial agents	Case	Case 1	Case 2	Case 3
Cefsulodin		S	S	S
Ampicillin		R	—	—
Piperacillin		S	S	S
Cefotaxime		S	—	—
Ceftizoxime		S	S	S
Cefmenoxime		S	—	—
Cefmetazole		R	—	—
Latamoxef		S	S	S
Flomoxef		R	—	S
Sulbactam/Cefoperazone		S	S	S
Aztreonam		S	S	S
Imipenem		S	S	S
Gentamicin		S	S	S
Amikacin		S	S	S
Erythromycin		S	R	S
Ofloxacin		S	S	S
Fosfomycin		S	S	S
Minocycline		S	—	S

R: resistant, S: sensitive, —: no study.

and WBC of 9,400/mm³. A urine analysis revealed pyuria. Urine cultures yielded *P. aeruginosa*, which was susceptible to many kinds of antibiotics. Ultrasonography showed a hypoechoic area in the left testis. He was treated empirically with ceftazidime (CAZ) (2 g/day) intravenously. After 8 days of antibiotics therapy, the swelling of the left scrotum persisted. Also, the left spermatic cord remained swollen. Finally left orchiectomy was performed. During the operation, abscess formations were found in the left testis and epididymis. Pus cultures yielded *P. aeruginosa*, which was susceptible to many kinds of antibiotics. Histologically, the epididymis showed severe infiltration of many inflammatory cells and severe fibrosis. Some parts of the testis showed necrotic change.

DISCUSSION

P. aeruginosa is a uncommon cause of acute

epididymo-orchitis³⁾. Most cases of acute bacterial epididymitis are of *C. trachomatis* and *N. gonorrhoeae* sexually transmitted in young men⁴⁾. *Pseudomonas* is generally confined to men over 35 years of age⁵⁾. Over half of these patients had an underlying genitourinary tract manipulation⁵⁾. Two of our patients were predisposed to infection. In case, 1, the man with diabetes was easily predisposed to infection. In case 3, the man had been catheterized for 2.5 years for preexisting abnormalities, which predisposed him to infection. Severe cases of bacterial epididymitis caused by *P. aeruginosa*, frequently involve the adjacent testicle, resulting in epididymo-orchitis⁶⁾. All three of our patients had epididymo-orchitis with an abscess formation. The main treatment for epididymo-orchitis is antibiotics therapy, but epididymo-orchitis with an abscess formation is an indication for incision, epididymectomy and orchiectomy^{5,7)}. Our results suggest that antibiotics for the treatment of *P. aeruginosa* in epididymo-orchitis is limited. Therefore, treatment should be individualized. In particular, patients with typical predisposing conditions generally require hospitalization and parenteral antibiotics. Close monitoring of patients is required with prompt surgical exploration when indicated⁷⁻⁹⁾.

CONCLUSION

We report 3 patients with acute epididymo-orchitis with abscess formation due to *P. aeruginosa*. Finally, an orchiectomy was performed on all patients.

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Pseudomonas aeruginosa を起炎菌とする膿瘍形成を伴った精巣炎の3例

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比較的稀で治療の困難な *P. aeruginosa* を起炎菌とする膿瘍形成を伴った急性精巣炎を3例経験したので報告する。すべての症例において、精巣腫大、疼痛、発熱を認めた。まず、経験的にいくつかの抗生剤による治療を行った。数週間の抗生剤での保存的な治療にもかかわらず、陰嚢腫大が持続し、うち1例において

は、陰嚢の潰瘍より黄褐色の膿の排出を認めた。最終的には、すべての症例で、精巣摘除術が施行された。手術時、それぞれの症例の精巣において膿瘍形成が認められた。膿培養において、多剤に感受性を有する *P. aeruginosa* を同定した。

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