

Original Article

Determination of the Factors Influencing Rupture of Baker's Cysts in the Knee on Plain Radiographs and MRI

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Purpose : We retrospectively compared plain radiographic and MR imaging findings of acutely ruptured and unruptured Baker's cysts to determine which factors cause rupture of BCs.

Materials and Methods: The MR findings for 44 Baker's cysts (non-ruptured Baker's cysts in 30 patients and ruptured Baker's cysts in 14 patients) were evaluated. On the MR images, the characteristics of the Baker's cysts, meniscal tears, and the quantity of joint effusions were evaluated. On plain radiographs, the grade of osteoarthritis of the affected knee was evaluated.

Results: There was no statistically significant difference with respect to the size of Baker's cysts, meniscal tears, and the grade of osteoarthritis between ruptured and unruptured Baker's cysts. The wall thicknesses, inner signal intensities, inner septations, and the quantity of joint effusions were statistically different between the ruptured and unruptured Baker's cysts.

Conclusion: The most significant imaging finding which influences the rupture of a Baker's cyst is the quantity of the joint effusion of the affected knee. In management of the patients with Baker's cysts, the quantity of joint effusions should be kept in mind for preventative or treatment trials involving ruptured Baker's cysts.

Index words : Knee · Baker cyst · Rupture · Magnetic resonance imaging (MRI)

INTRODUCTION

A Baker's cyst (BC) or popliteal cyst shows a fluid collection of a bursa between the medial gastrocnemius and semimembranosus tendons through a communication with the knee joint (1). The incidence of BCs has been reported to be between 10% and

41% of the population of patients referred for symptoms of internal derangement of the knee, as based on magnetic resonance (MR) imaging (1-3). Although most BCs are small and present without symptoms, the lesions may be detected as a mass in the medial portion of the popliteal fossa or by compression of nearby neurovascular or muscular structures. The lesions are occasionally detected due to rupture (4). In cases of ruptured BCs, patients can have severe pain in the posterior aspect of the knee and soft tissue swelling in the calf. Indeed, an acute ruptured BC can resemble acute deep vein thrombosis, thrombophlebitis, or a compartment syndrome in the calf (5-9).

The pathogenesis of BCs in adults is controversial.

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However, it is commonly accepted that a BC is the result of a communication between the posterior knee joint and the gastrocnemius-semimembranosus bursa and distension of the bursa. In the communication, a one-way valve effect is present allowing to-and-fro flow movement of the effusion with knee flexion, but unidirectional flow movement of the effusion from the joint space into the cyst with extension (1, 10–13). An effusion in the knee with inflammatory and degenerative arthropathies causes increased intra-articular pressure, which then forces the joint effusion through a communication between the posterior joint capsule into the bursa (1, 10). BCs are associated with one or more intra-articular disorders, such as meniscal lesions, chondral lesions, and anterior cruciate ligament tears. The most common lesion is a meniscal tear (83%), typically involving the posterior horn of the medial meniscus (14). In several studies, intra-articular disorders such as degenerative osteoarthritis (OA) or rheumatoid arthritis, have been demonstrated to have important roles in the pathogenesis of BCs in adults (1, 4, 14–18).

Therefore, we thought that rupture of BC would be strongly related to the size of a BC, the quantity of joint effusion, and degree of degenerative OA in the knee joint with BC. However, to the best of our knowledge, no reports have described the factors influencing rupture of a BC on plain radiographs and MR images in the English literature.

We retrospectively compared and analyzed plain radiographic and MR imaging findings of ruptured and unruptured BCs with an emphasis on meniscal tears, quantity of joint effusions, and the grade of degenerative OA to determine the factors which influence rupture of BCs.

MATERIALS AND METHODS

Patient Selection, and Demographic and Clinical Data

The Ethics Committee of our institution did not require patient approval or informed patient consent for this retrospective study.

The investigators retrospectively reviewed the medical records of 61 patients with BCs who underwent MR imaging in our institution between April 2007 and December 2008. A search through the

MR databases was performed at our institution using the terms “Baker’s cyst” or “ruptured Baker’s cyst”, which yielded the records of 61 patients. Seventeen patients among the 61 patients were excluded in this study due to a recent history of trauma.

The 44 patients consisted of 35 females with a mean age of 59 years, and 9 males with a mean age of 47 years. The overall mean patient age was 57 years (age range, 18–80 years). Of the 44 patients, 30 patients (25 females with a mean age of 59 years and 5 males with a mean age of 47 years) with an overall mean age of 57.1 years (age range, 18–80 years) had unruptured BCs. Fourteen patients (10 females with a mean age of 61 years and 4 males with a mean age of 47 years) with an overall mean age of 56.6 years (age range, 31–74 years) had ruptured BCs.

Two musculoskeletal radiologists (with 10 and 17 years of experience in musculoskeletal radiology, respectively) determined the presence or absence of ruptured BCs according to the clinical findings and MR findings by consensus. The clinical findings included the presence or absence of acute posterior knee pain, acute swelling of the popliteal fossa or upper calf, and severe tenderness at the popliteal fossa. Additionally, pericystic edema and a fluid collection in the medial popliteal fossa existed on the MR images. Based on these clinical and MR findings, 30 BCs were unruptured and 14 BCs were ruptured. In these patients, two unruptured BCs and four ruptured BCs were surgically-confirmed. The clinical findings of patients with ruptured BCs included palpable popliteal masses in 7 patients (50%), acute posterior knee pain in 10 patients (71%), acute swelling of the upper calf in 12 patients (86%), and severe tenderness involving the posterior aspect of the popliteal fossa or upper calf area in 14 patients (100%).

Patients with unruptured BCs were categorized as group A and patients with ruptured BCs were categorized as group B.

MR Imaging Protocol and Assessment

Within 1 week of radiography, MR imaging of each knee was performed with a 3.0-Tesla system (Achieva; Philips Medical Systems, Best, The Netherlands) with a dedicated eight-channel extremity receiver knee coil. Patients were placed in the supine position with a fully extended knee. The imaging parameters utilized for all

patients are summarized in Table 1.

Two experienced musculoskeletal radiologists (with 10 and 17 years of experience in musculoskeletal radiology, respectively) interpreted the MR images without knowledge of the clinical information and operative results. All interpretations of MR images were decided by consensus. Four cyst-related MR findings for BCs, meniscal tears and the quantity of joint effusions of the knee on MR images were evaluated as follows.

Size of BCs – Three directional diameters of each BC were evaluated (height, transverse diameter, and anteroposterior diameter). The largest diameter was measured for each direction.

Wall thickness of BCs – The maximum thickness of the BC wall was measured on all three directional images.

Signal intensity (SI) of the inner fluid content – The SI of the inner fluid content for BCs on T2-weighted or proton-weighted fat-saturated images were assigned grades as follows: grade 1, homogeneous (Fig. 1a); and grade 2, inhomogeneous (Fig. 2a).

Septations of BCs – Septations in BCs were defined as inner low signal lines in BCs as seen on T2-weighted or proton-weighted fat-saturated images. Septations were assigned grades as follows: grade 1, without septations (Fig. 1); and grade 2, with septations (Fig. 2).

Meniscal tear – A meniscal tear is defined as a linear high SI within the meniscus on T2-weighted or proton-weighted fat-saturated images, which extends to the superior or inferior surface or inner margin of the meniscus on more than one section.

Amount of joint effusion – To determine the quantity of knee joint effusion, grade 1 joint effusion was defined as the presence of synovial fluid in the lateral or medial patellar recesses that did not exceed 1 cm in the maximum anteroposterior diameter on a sagittal T2-weighted image. For grade 2 joint effusion, the maximum anteroposterior diameter of the synovial fluid collection was 1–2 cm, and for grade 3 joint effusion, the maximum anteroposterior diameter exceeded 2 cm.

Radiographic Assessment of the Grade of Degenerative Osteoarthritis

Anteroposterior radiographs of knee joints were obtained from patients in a weight-bearing extended position. Two experienced musculoskeletal radiologists (with 3 and 5 years of experience in musculoskeletal radiology, respectively) evaluated scores of all radiographs by use of the Kellgren-Lawrence scoring system (19), and all interpretations were decided by consensus. For the use of the Kellgren-Lawrence scoring system, the radiographic findings of osteophyte formation, joint space narrowing, sclerosis, and joint deformity were based and were scored with a 5-point scale as the follows: grade 0, normal; grade 1, doubtful OA, with minute osteophytes of doubtful

Table 1. Parameters for Knee MR Imaging

Parameter	Sequence				
	Proton-weighted Turbo Spin-Echo Fat Saturation	T1-weighted Turbo Spin-Echo	Proton-weighted Turbo Spin-Echo	T2-weighted Turbo Spin-Echo	Proton-weighted Turbo Spin-Echo Fat Saturation
Plane	Axial	Sagittal	Sagittal	Sagittal	Coronal
Repetition time (msec)	5000	490	4955	3700 – 4000	5000
Echo time (msec)	25	20	25	100	30
Field of view (mm)	160 × 160	160 × 160	160 × 160	160 × 160	160 × 160
Matrix size	292 × 275	332 × 333	384 × 345	356 × 345	256 × 205
Thickness (mm)	2.5	3	3	3	2.5
No. of signals acquired	1	1	2	1	2
Echo train length	8	3	10	15	4

importance; grade 2, minimal OA, with definite osteophytes but an unimpaired joint space; grade 3, moderate OA, with osteophytes and a moderate diminution of the joint space; and grade 4, severe OA, with a greatly impaired joint space and sclerosis of the subchondral bone (19).

We categorized the scores into two grades to

Table 2. Demographic Data by Patient Group

Characteristics	Group A (n = 30)	Group B (n = 14)	P value
Age*(y)	57.14 ± 12.53	56.57 ± 10.65	0.885
Sex (M: F)	5:25	4:10	0.434
Affected side (right: left)	11:19	6:8	0.952

Note - *Data are the means ± standard deviations.

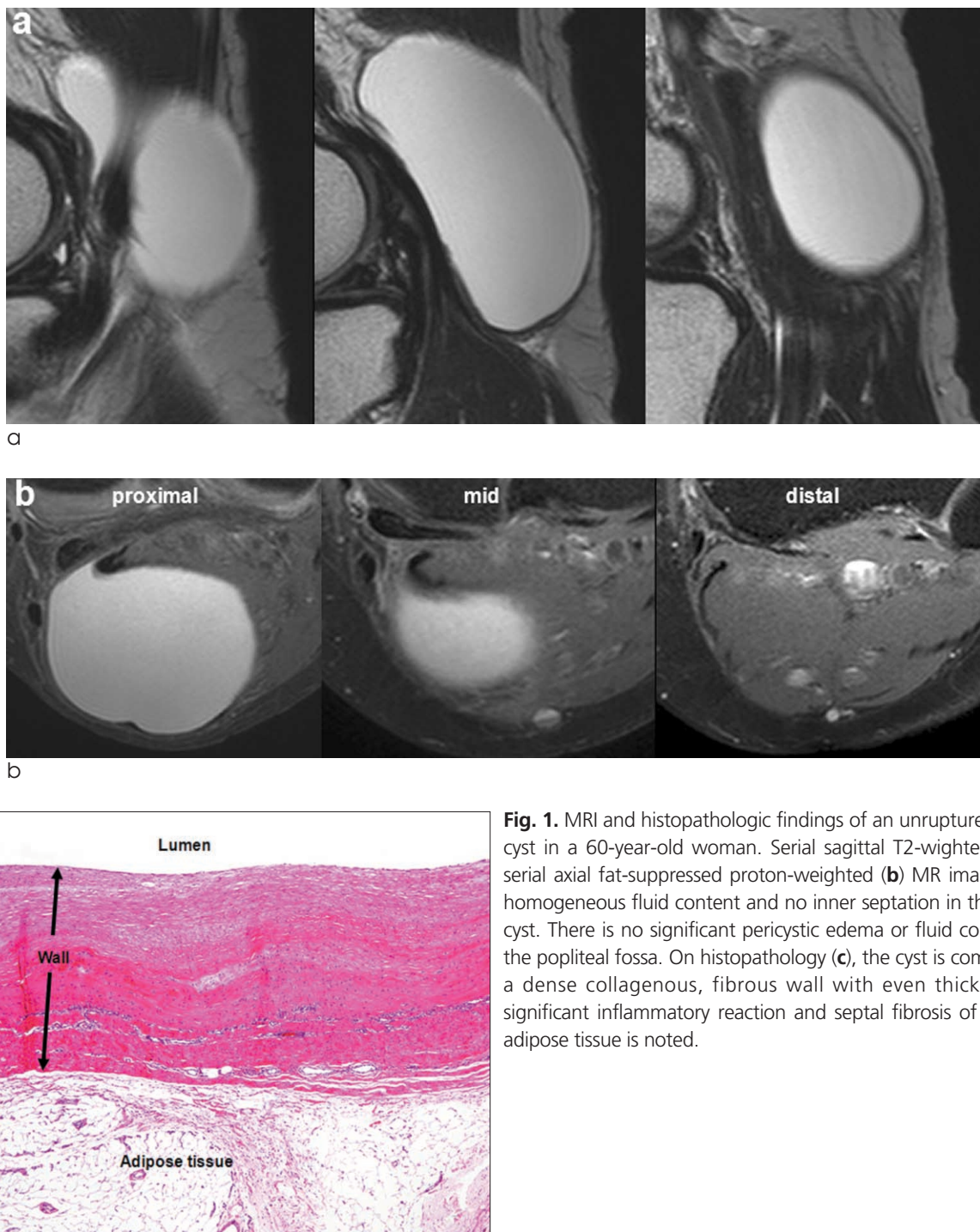


Fig. 1. MRI and histopathologic findings of an unruptured Baker's cyst in a 60-year-old woman. Serial sagittal T2-wighted (**a**) and serial axial fat-suppressed proton-weighted (**b**) MR images show homogeneous fluid content and no inner septation in the Baker's cyst. There is no significant pericystic edema or fluid collection in the popliteal fossa. On histopathology (**c**), the cyst is composed of a dense collagenous, fibrous wall with even thickness. No significant inflammatory reaction and septal fibrosis of pericystic adipose tissue is noted.

simplify the grade of degenerative osteoarthritis. Knee joints with a normal-to-mild degree of degenerative OA (grade 0–2) were categorized as grade I and knee joints with a moderate-to-severe degree of degenerative OA (grade 3 or 4) were categorized as grade II.

Statistical Analysis

The measured parameters for age, size, and wall thickness were analyzed with an independent samples *t*-test for evaluation of the significance of differences. Differences in the parameters, including gender, side of the BC, SI of the inner fluid content, septations, meniscal tears, the quantity of joint effusions, and the

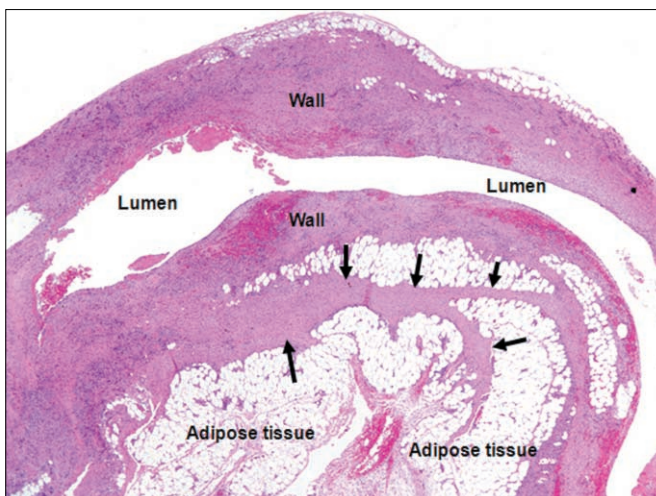
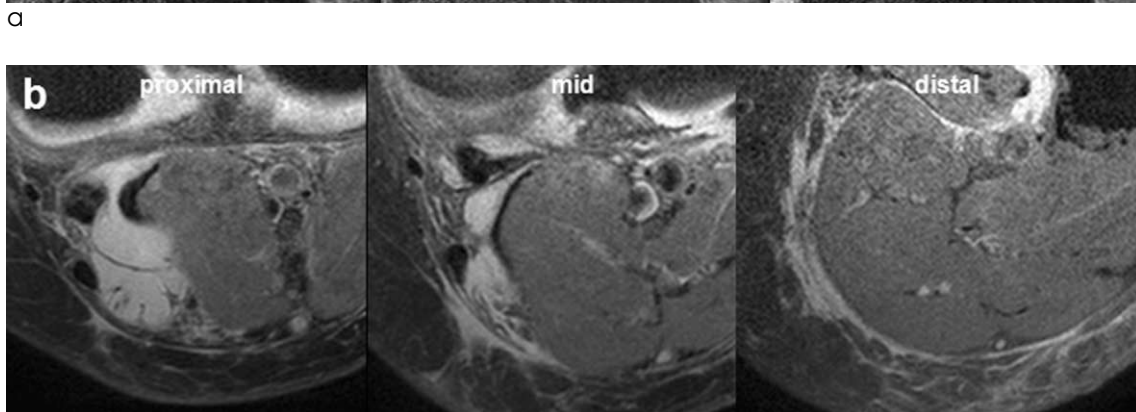
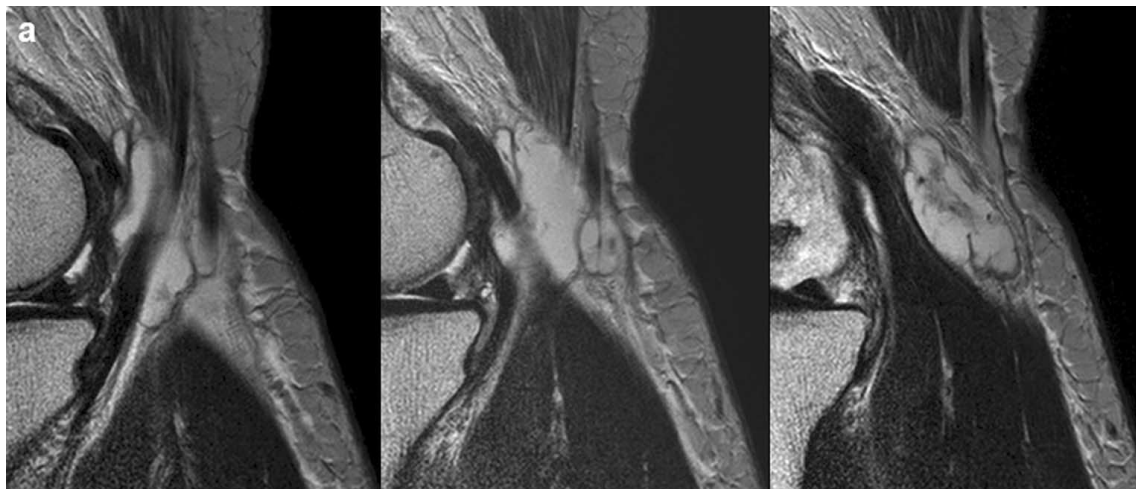


Fig. 2. MRI and histopathologic findings of a ruptured Baker's cyst in a 55-year-old woman. Serial sagittal T2-weighted (**a**) and serial axial fat-suppressed proton-weighted (**b**) MR images show inhomogeneous fluid content and multiple septations in the Baker's cyst. Marked pericystic edema and fluid collection are noted around the Baker's cyst and in the posterior aspect of the upper calf. On histopathology (**c**), the cyst is composed of a dense collagenous, fibrous wall with variable thickness and inflammatory cell infiltration. Marked inflammatory reaction and septal fibrosis (arrows) in pericystic adipose tissue are noted.

grade of degenerative OA in groups A and B were compared using a two-tailed chi-square test or Fisher's exact test. A p value < 0.05 (95% confidence interval) was considered to be statistically significant.

RESULTS

The results from all factors analyzed are summarized in Tables 2 and 3. The differences for age, gender and affected side were not statistically significant for groups A and B ($p > .05$).

Statistical Comparisons for the Analysis of Factors on Images

Size of BCs – There was no statistically significant difference with respect to height ($p = 0.78$), transverse diameter ($p = 0.88$), and anteroposterior diameter ($p = 0.16$) for the two groups.

Wall thickness of BCs – The difference was statistically significant between the two groups ($p = 0.005$).

SI of the inner fluid content – The difference between the two groups was statistically significant ($p = 0.02$).

Septations of BCs – The difference between the two groups was statistically significant ($p = 0.04$).

Meniscal tears – The difference between the two groups was not statistically significant ($p = 0.581$).

Amount of joint effusions – The difference between the two groups was statistically significant ($p = 0.027$).

Grade of degenerative OA – The difference between the two groups was not statistically significant ($p = 1.00$).

DISCUSSION

Although most BCs are small and asymptomatic, the lesions can cause symptoms by compression of adjacent structures, such as popliteal vessels and the tibial nerve, or symptoms can occur occasionally due

Table 3. MR and Radiographic Characteristics of Patient Groups with their Significances

Parameters	Group A (n = 30)	Group B (n = 14)	P value
Size of BC*(mm)	H 57.33 \pm 1.95 T 27.50 \pm 1.19 AP 19.83 \pm 0.85	H 55.60 \pm 1.72 T 26.93 \pm 0.98 AP 16.36 \pm 0.45	0.78 0.88 0.16
Wall thickness of BC*(mm)	1.08 \pm 0.37	1.45 \pm 0.45	0.005
SI of inner fluid content in BC [§] (grade)	1.08	1.5	0.02
grade 1	n = 28	n = 7	
grade 2	n = 2	n = 7	
Septation in BC [§] (grade)	1.7	2	0.04
grade 1	n = 9	n = 0	
grade 2	n = 21	n = 14	
Meniscal tear	present absent	n = 12 n = 2	0.581
Amount of joint effusion [§] (grade)	1.37	1.64	0.027
grade 1	n = 21	n = 5	
grade 2	n = 7	n = 9	
grade 3	n = 2	n = 0	
Degenerative osteoarthritis [§] (grade)	1.33	1.36	1.00
grade I (K-L grade 0 – 2)	n = 20	n = 9	
grade II (K-L grade 3, 4)	n = 10	n = 5	

Note - *Data are the means \pm standard deviations, [§]Data are the means, SI is signal intensity, n = the number of patients, K-L grade is grade according to Kellgren-Lawrence scoring system.

to rupture or leakage (4). A BC may rupture, with extravasation of synovial fluid and degraded blood products into the soft tissue, causing an inflammatory response (20). This problem may result in improper treatment with the use of anticoagulant therapy for the treatment of a presumed acute deep vein thrombosis (4). Therefore, clinically it is important to diagnose ruptured BCs correctly and promptly.

The pathogenesis of BCs in adults is controversial. However, an internal derangement, such as a meniscal tear or an anterior cruciate ligament tear, effusion, degenerative arthropathy, and inflammatory arthropathy have been reported to be associated with the development of BCs (1, 4, 10, 14–18). Therefore, prior to our study, we developed a hypothesis that BCs are prone to rupture in cases of large-sized cysts, a large amount of joint effusion in the knee, and a severe degree of degenerative OA in the knee joint.

Based on our study, the size of a BC was not related to rupture of a BC. However, the size of a BC can become smaller and can collapse after rupture, as the fluid content of a BC spreads over the soft tissue of the popliteal fossa and upper calf. The real size of ruptured BC is predicted to be larger than unruptured BC. Therefore, the size factor could not be reliable.

The wall thickness of a BC was related to BC rupture. Ruptured BCs had a thicker wall as compared to the walls of unruptured BCs. However, this factor is also not reliable as the wall thickness of a BC can be thickened due to a reactive change, such as inflammatory wall thickening after rupture of a BC. In terms of the cause for BC rupture, a BC with a thicker wall is thought to be easy to rupture due to decreased elasticity and compressibility when external pressure on a BC or internal pressure in a BC exceeds stable limits. In contrast, for BC rupture, a thicker wall of a BC is suggested as a simple finding for reactive inflammatory changes.

Fluid SI and septations in the inner content of BCs were related to rupture of BCs. Ruptured BCs exhibited a heterogeneous SI and septations in the inner fluid content of the BCs as compared to BCs without rupture. We think that these factors are secondary changes after BC rupture rather than findings at an imminent time of BC rupture.

BCs are variably associated to complete or degenerative tears of the meniscus (15, 21). Tears in the posterior horn of the medial meniscus are strongly

related to the presence of a BC. In our study, meniscal tears were commonly combined with BCs, but these were not significant factors for rupture of a BC.

The relationship between a BC and the quantity of joint effusion and between a BC and degenerative arthropathy in the knee has been evaluated (1). According to a study by Miller et al. (1), involving a general orthopedic population with 400 consecutive MR imaging examinations of the knee, joint effusions and degenerative arthropathies had significant associations with BCs. Joint effusions are a presumed cause of BCs in inflammatory and degenerative osteoarthropathies (11, 12) and can cause increased intra-articular pressure that moves fluid through a weakened joint capsule into the potential space of the medial gastrocnemius-semimembranous bursa (10). The amount of joint effusion also had a role in development of a cyst rupture based on the results of our study. Degenerative osteoarthropathy alters biomechanics with a higher intra-articular pressure in the knee joint and the changed biomechanics squeeze even normal amounts of fluid into the medial gastrocnemius-semimembranous bursa (23). Degenerative osteoarthropathy could be a cause of BC development, but the grade of degenerative OA was not associated with BC rupture, as determined in our study.

Treatment of a BC is primarily non-surgical (rest, leg elevation, non-steroidal anti-inflammatory drugs, and aspiration of the fluid). If the BC is combined with degenerative OA or rheumatoid arthritis, correction of these articular diseases can help relieve symptoms and prevent recurrences (4). Surgical treatment is indicated if symptoms related to the cyst persist and limit the patient's knee function. Surgical methods for BC include open resection and arthroscopic suture (21, 24).

There were two main limitations of our study. First, we had only a small number of cases of surgically-confirmed ruptured and unruptured BCs. For cases of unruptured BCs, only two cases were surgically-proven to be unruptured (Fig. 1). Additionally, there were only four cases of surgically-proven ruptured BCs (Fig. 2). Ten cases were diagnosed based on clinical and MR imaging findings without surgery. However, we think that the last limitation could be overcome by the characteristic clinical findings, physical examinations, and MR imaging findings.

Second, we did not determine interobserver variability or error data, as the MR images were evaluated in consensus.

CONCLUSION

In conclusion, ruptured BCs showed thicker wall, more inner septations, and inhomogeneous SI of the inner fluid content as compared with non-ruptured BCs. The quantity of joint effusion of the affected knee was related to rupture of a BC, but the size of a BC, meniscal tears, and degree of degenerative OA were not related to rupture of a BC. Therefore, in management of the patients with BC, the quantity of joint effusion should be kept in mind for preventative or treatment trials of BC rupture.

References

1. Miller TT, Staron RB, Koenigsberg T, Levin TL, Feldman F. MR imaging of Baker cysts: association with internal derangement, effusion, and degenerative arthropathy. *Radiology* 1996;201: 247-250
2. Janzen DL, Peterfy CG, Forbers JR, Tirman PFJ, Genant HK. Cystic lesions around the knee joint: MR imaging findings. *AJR Am J Roentgenol* 1994;163:155-161
3. Fielding JR, Franklin PD, Kustan J. Popliteal cysts: a reassessment using magnetic resonance imaging. *Skeletal Radiol* 1991;20:433-435
4. Torreggiani WC, Al-Ismail K, Munk PL, et al. The imaging spectrum of Baker's (popliteal) cysts. *Clin Radiol* 2002;57:681-691
5. Langsfeld M, Matteson B, Johnson W, Wascher D, Goodnough J, Weinstein E. Baker's cysts mimicking the symptoms of deep vein thrombosis: diagnosis with venous duplex scanning. *J Vasc Surg* 1997;25:658-662
6. Natarajan A, Amarvathi R, Philip B, Rozario A. Ruptured Baker's cyst simulating deep venous thrombosis. *Trop Doct* 2003;33:106-107
7. Ozgocmen S, Kaya A, Kocakoc E, Kamanli A, Ardicoglu O, Ozkurt-Zengin F. Rupture of Baker's cyst producing pseudothrombophlebitis in a patient with Reiter's syndrome. *Kaohsiung J Med Sci* 2004;20:600-603
8. Klovning J, Beadle T. Compartment syndrome secondary to spontaneous rupture of a Baker's cyst. *J La State Med Soc* 2007;159:43-44
9. Schimizzi AL, Jamali AA, Herbst KD, Pedowitz RA. Acute compartment syndrome due to ruptured Baker cyst after nonsurgical management of an anterior cruciate ligament tear: a case report. *Am J Sports Med* 2006;34:657-660
10. Lindgren PG, Willén R. Gastrocnemio-semimembranosus bursa and its relation to the knee joint. I. Anatomy and histology. *Acta Radiol* 1977;18:497-512
11. Doppman JL. Baker's cyst and the normal gastrocnemio-semimembranosus bursa. *AJR Am J Roentgenol* 1965;94:646-652
12. Wilson PD, Eyre-Brook AL, Francis JD. A clinical and anatomical study of the semimembranosus bursa in relation to popliteal cyst. *J Bone Joint Surg* 1938;20:963-984
13. Lindgren PG, Rauschnig W. Clinical and arthrographic studies on the valve mechanism in communicating popliteal cysts. *Arch Orthop Traumat Surg* 1979;95:245-250
14. Sansone V, de Ponti A, Paluello GM, del Maschio A. Popliteal cysts and associated disorders of the knee: critical review with MR imaging. *Int Orthop* 1995;19:275-279
15. Stone KR, Stoller D, De Carli A, Day R, Richnak J. The frequency of Baker's cysts associated with meniscal tears. *Am J Sports Med* 1996;24:670-671
16. Szer IS, Klein-Gitelman M, DeNardo BA, McCauley RGK. Ultrasonography in the study of prevalence and clinical evolution of popliteal cysts in children with knee effusions. *J Rheumatol* 1992;19:458-462
17. Carpenter JR, Hattery RR, Hunder GG, Bryan RS, McLeod RA. Ultrasound evaluation of the popliteal space: comparison with arthrography and physical examination. *Mayo Clin Proc* 1976;51:498-503
18. Meire HB, Lindsay DJ, Swinson DR, Hamilton EBD. Comparison of ultrasound and positive contrast arthrography in the diagnosis of popliteal and calf swellings. *Ann Rheum Dis* 1974;33:221-224
19. Kellgren JH, Lawrence JS. Epidemiology of chronic rheumatism. Philadelphia, Pa: Davis, 1963
20. Chaudhuri R, Salari R. Baker's cyst simulating deep vein thrombosis. *Clin Radiol* 1990;41:400-404
21. Calvisi V, Lupporelli S, Giuliani P. Arthroscopic all-inside suture of symptomatic Baker's cysts: a technical option for surgical treatment in adults. *Knee Surg Sports Traumatol Arthrosc* 2007; 15:1452-1460
22. Wigley RD. Popliteal cysts: variations on a theme of Baker. *Semin Arthritis Rheum* 1982;12:1-10
23. Pedowitz RA, Gershuni DH, Crenshaw AG, Petras SL, Danzig LA, Hargens AR. Intraarticular pressure during continuous passive motion of the human knee. *J Orthop Res* 1989;7:530-537
24. Burger C, Mönig SP, Prokop A, Rehm KE. Baker's cyst - current surgical status. Overview and personal results. *Chirurg* 1998;69: 1224-1229

단순 X선 촬영과 자기공명영상을 이용한 Baker's cysts의 파열에 영향을 주는 요인 평가

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목적: 파열되지 않은 Baker's cysts와 파열된 Baker's cysts의 단순 X선 촬영과 자기공명영상 소견을 비교하여 BCs의 파열에 영향을 주는 요인에 대해 조사하였다.

대상과 방법: 44명의 Baker's cysts 환자 (파열되지 않은 Baker's cysts 환자 30명, 파열된 Baker's cysts 환자 14명)의 단순 X선 촬영과 자기공명영상 소견을 분석하였다. 자기공명영상에서는 BCs의 특성, 반달연골의 열상, 슬관절 삼출액 양을 조사하였고, 단순 X선 촬영에서는 이환된 슬관절의 퇴행성 골관절염의 등급에 대해 조사하였다.

결과: Baker's cysts의 크기, 반달연골의 열상여부, 퇴행성 골관절염의 등급은 파열되지 않은 Baker's cysts와 파열된 Baker's cysts간의 유의한 차이를 보이지 않았다. Baker's cysts의 벽 두께, 내부의 신호강도, 내부 중격, 슬관절 삼출액 양은 두 군 간에 유의한 차이를 보였다.

결론: Baker's cysts의 파열에 가장 영향을 주는 요인은 이환된 슬관절 삼출액 양이었다. Baker's cysts 환자에서, 슬관절 삼출액 양을 주지하는 것이 Baker's cysts의 파열을 예방하거나 치료계획 수립에 도움을 줄 수 있을 것으로 생각된다.

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