



# 10

## ALASAN UTAMA MENGGUNAKAN SARUNG TANGAN BEBAS BEDAK

Paparan bedak dari sarung tangan bedah dan exam dapat menyebabkan sejumlah reaksi yang tidak diinginkan, yang saat ini didokumentasikan dengan baik:



### 2. BEDAK MENINGKATKAN FAKTOR RISIKO TERJADINYA INFENSI LUKA PASCA OPERASI.

Seperti kebanyakan benda asing, sarung tangan berbedak mengurangi inokulum bakteri yang diperlukan untuk menghasilkan abses (dalam hal ini dikurangi dengan faktor setidaknya 10 kali lipat).<sup>15</sup> Selain itu, bedak memperlambat penyembuhan luka dan mengubah proses perbaikan normal, sementara pada saat yang sama meningkatkan respons inflamasi luka.<sup>16,17,8</sup>



### 3. SARUNG TANGAN BERBEDAK DAPAT MENINGKATKAN SENSITISASI ALERGI LATEKS DAN MEMICU REAKSI HIPERSENSITIVITAS TIPE I.

Sarung tangan berbedak dapat menunjukkan tingkat alergen Natural Rubber Latex (NRL) yang jauh lebih tinggi daripada sarung tangan bebas bedak dan dapat meningkatkan sensitivitas terhadap lateks atau menyebabkan reaksi cepat hipersensitivitas tipe I melalui kontak langsung.<sup>18,19,20,21,22,23,24,25,26,27,28,29,30</sup>



### 1. BEDAK DAPAT MENYEBABKAN BERKEMBANGNYA ADHESI DAN GRANULOMA.

Didokumentasikan dengan baik berkenaan dengan rongga peritoneum, tetapi juga dilaporkan di hampir setiap situs anatomi, seperti mata, daerah mulut, rongga tengkorak, telinga tengah, dada, kandung kemih.



### 4. BEDAK MENCEMARI LINGKUNGAN RUMAH SAKIT DAN MENINGKATKAN PAPARAN TERHADAP ALERGEN LATEKS MELALUI INHALASI UDARA.

Alergen protein NRL dapat menyatu dengan bedak sarung tangan. Partikel bedak yang dilapisi alergen/protein ini dapat dilepaskan ke udara saat sarung tangan dikenakan atau dilepas. Menghirup atau menelan partikel-partikel ini dapat menyebabkan sensitivitas dan beragam reaksi alergi terhadap NRL (yaitu gejala saluran pernapasan bagian atas atau iritasi mata).<sup>31,32,33,34,35,36</sup>



### 5. BEDAK DAPAT MENINGKATKAN RISIKO KONTAMINASI SILANG MIKROORGANISME.

Bedak sarung tangan juga dapat berfungsi sebagai sarana bagi mikroorganisme oportunistis dan patogen, yang meningkatkan risiko okupasional bagi pekerja medis dan risiko bagi pasien. Kontaminasi partikel bedak pada kateter, perfusi ginjal donor, dan bahan kosmetik kedokteran gigi (mahkota, prostesis) antara lain telah banyak dilaporkan.<sup>37,38</sup>



### 6. BEDAK DAPAT MENGGANGGU PENGUJIAN LABORATORIUM YANG MENGAKIBATKAN HASIL YANG SALAH.

Bedak dapat menyebabkan hasil yang salah, mis. PCR - Polymerase Chain Reaction, enzyme immunoassay atau beberapa tes HIV dan granuloma karena bedak yang salah didiagnosis sebagai karsinoma metastatik.<sup>39,40,41</sup>



### 7. BEDAK MEMILIKI EFEK ABRASIF PADA KULIT.

Bedak memiliki efek mekanis pada kulit tangan dengan meningkatkan kekasarannya seperti yang ditunjukkan oleh analisis profilometri laser dari replika kulit tangan.<sup>42</sup>



### 8. BEDAK MEMBUAT PH KULIT TIDAK SEIMBANG.

PH kulit yang relevan untuk perlindungan terhadap mikroorganisme (bakteri, jamur) biasanya sekitar 5,5. PH kulit tetap basa selama berjam-jam setelah mengenakan sarung tangan berbedak karena kebiasaan bedak.<sup>42,43,44</sup>



### 9. BEDAK BERINTERAKSI DENGAN LARUTAN TANGAN BERBASIS ALKOHOL.

Setelah melepas sarung tangan, alkohol antiseptik dapat berinteraksi dengan sisa bedak di tangan pekerja, sehingga menimbulkan rasa berpasir di tangan. Bedak juga cenderung mengotori tangan dengan kandungan organik yang harus dihilangkan dengan air dan pencucian dengan sabun biasa sebelum mengaplikasikan kembali antiseptik alkohol.<sup>45,46</sup>



### 10. BEDAK MENAMBAH WAKTU DAN BIAYA

Bedak sarung tangan harus dihilangkan setelah mengenakan sarung tangan bedak (menggunakan air atau garam dan spons atau handuk steril), yang menambah biaya dan waktu pada prosedur. Telah dilaporkan setidaknya tujuh kali lebih tinggi daripada biaya menggunakan sarung tangan bebas bedak, sementara pada saat yang sama tidak efisien dalam menghilangkan bedak secara menyeluruh.<sup>47,48,49,50,51,52</sup>

# REFERENSI

- (1) Lyon F, Taylor RH: Conjunctival granuloma caused by surgical talc. J AAPOS. Agu 2007;11(4):402-3. Epub 19 Apr 2007.
- (2) Dwivedi AJ, Kuwajerwala NK, Silva YJ, Tennenberg SD. Effects of surgical gloves on postoperative peritoneal adhesions and cytokine expression in a rat model. Am J Surg. Nov 2004;188 (5):491-4.
- (3) Van den Tol MP, Haverlag R, van Rossem ME, Bonthuis F, Marquet RL, Jeekel J. Glove powder promotes adhesion formation and facilitates tumour cell adhesion and growth Br J Surg. Sept 2001; 88 (9):1258-63
- (4) Luijendijk RW, cdLange DCD, Wauters CCAP, Hop WCJ, Duron JJ, Pailler JL, Camprodon BR, Holmdahl L, vanGeldorp HJ, Jeekel J. Foreign material in postoperative adhesions. Annals of Surg. 223: 242-248, 1996.
- (5) Becker JM, Dayton MT, Fazio VW, dkk. Prevention of postoperative abdominal adhesions by a sodium hyaluronate based bioresorbable membrane: a prospective randomized double blind multicenter study. J Am Coll Surg. 1996 183: 297-306.
- (6) Hunt TK. Can adhesions be prevented? J Amer Coll Surgeons. 183: 406-407, 1996.
- (7) Duron, J.J. dkk. Post-operative peritoneal adhesions and foreign bodies. Eur. J. Surg. Suppl. 1997; vol. 579: 15-16.
- (8) Cantoni GM, Longo T. [Peritoneal reactions caused by starch used regularly for lubricating surgical gloves. Review of the literature] Minerva Chir. 1994 Jun; 49(6):569-74.
- (9) Kamffer WJ, Jooste EV, Nel JT, de Wet JI. Surgical glove powder and intraperitoneal adhesion formation. An appeal for the use of powder-free surgical gloves. S Afr Med J. Feb 1992 1;81(3):158-9.
- (10) Hunt, T.K. dkk. Starch powder contamination of surgical wounds. Arch. Surg. 1994; vol 129(8): 825-827.
- (11) Eynon CA, Thomson WH: Experimental study of starch-induced intraperitoneal adhesions. Br J Surg. 1991 Mar; 78(3):377.
- (12) McEntee GP, Stuart RC, Byrne PJ, Leen E, Hennessy TP. Experimental study of starch-induced intraperitoneal adhesions. Br J Surg. 77: 113-114, 1990.
- (13) Eggert A, Teichmann W, Dociu N, Kopf R. [Starch granulomas caused by glove powder] Chirurg. 1981 Jun; 52(6):380-4. Yaffe H dkk. Potentially deleterious effect of cornstarch glove powder in tubal reconstruction surgery. Fertil Steril 1978; 29(6):699-701.
- (14) Yaffe H dkk. Potentially deleterious effect of cornstarch glove powder in tubal reconstruction surgery. Fertil Steril 1978; 29(6):699-701.
- (15) Emerson, M. Chairman's conclusions. Eur J Surg. 1997.
- (16) Odum, B.C. dkk. Influence of absorbable dusting powders on wound infection. J. Emerg. Med. 1998; vol. 16(6): 875-9.
- (17) Filon F., Larese Radman G. **Latex Allergy:** A Follow-up Study of 1040 Healthcare workers. Occupational and Environmental Medicine Feb 2006; 63(2):121-5.
- (18) Bousquet J, Flahault A, Vandenplas O, et al. (2006). Natural rubber latex allergy among health care workers: a systematic review of the evidence. J Allerg Clin Immunol 118: 447-454.
- (19) Alimers H, Schmengler J, John SM. 2004 Decreasing incidence of occupational contact urticaria caused by natural rubber latex allergy in German healthcare workers. J Allergy Clin Immunol 114:347-351.
- (20) Reunala T., Turjanmaa K., Aleinik H., Reinikka-Railo H., Palosuo T. A Significant Decrease in the incidence of Latex-Allergic Healthcare Workers Parallels with a Decreasing Percentage of Highly Allergenic Latex Gloves in the Market in Finland. J.Allergy Clin. Immunol. 2004; 113(2): S60, Abstract 140.
- (21) Cullinan P, Brown R, Field A, et al. 2003 Latex allergy. A position paper of the British Society of Allergy and Clinical Immunology. Clin Exp Allergy 33: 1484-1499.
- (22) Kelly KJ, Klancnik M, Kurup V, Barrios-Jankol C, Fink J.N. and Petsonk E.L. A Four-Year Prospective Study to Evaluate the Efficacy of Glove Interventions in Preventing Natural Latex Sensitization in Healthcare Workers at Two Hospitals. J. Allergy Clin. Immunol. 2003, Part 2; Vol. 111, No. 2, No. 426.
- (23) Charous BL, Blanco C, Tarlo S, Hamilton RG, Bayr X, Beezhold D, Sussman G, Yuninger JW. Natural Rubber Latex Allergy after 12 Years: Recommendations and Perspectives. J Allergy Clin Immunol. 2002 Jan;109 (1):31-4.
- (24) Hunt, L. W., Kalker P., Reed, C.E. and Yunginger J. W. "Management of Occupational Allergy to Natural Rubber Latex in a Medical Center: The Importance of Quantitative Latex Allergen Measurement and Objective Follow-Up.J. Allergy Clin. Immunol. 2002; 110:S94-106.
- (25) Turjanmaa K., Kanto M., Kautiainen H., Reunala T. and Palosuo T. Long-term Outcome of 160 Adult Patients with Natural Rubber Latex Allergy. J. Allergy Clin. Immunol. 2002; 110: S70-74.
- (26) Edelstam G, Arvanitis L, Karlsson G. Glove Powder in the Hospital Environment-Consequences for Healthcare Workers. Intl. Arch Occup Environ Health. Apr 2002;75(4):267-7
- (27) Cuming R. Reducing the Hazard of Exposure to Cornstarch Glove Powder. AORN. Agu 2002;76(2):288-95.
- (28) Tarlo S.M., Easty A., Dubanks K., Min F. and Liss G. Outcomes of a Natural Rubber Latex Control Program in an Ontario Teaching Hospital. University Health Network and Department of Medicine and Public Health Sciences, University of Toronto. J. Allergy Clin. Immunol. 2001; 108: 628-633.
- (29) Phillips ML, Meagher CC, Johnson DL. What is "Powder-free"? Characterisation of Powder Aerosol Produced during Simulated Use of Powdered and Powder-free Latex Gloves. Occup Environ Med. Jul 2001;58(7):479-81.
- (30) Liss GM, Tarlo SM. Natural Rubber Latex-related Occupational Asthma: Association with Interventions and Glove Changes over Time. Am J Ind Med. Okt 2001;40(4):347-53.
- (31) Dyck R. Historical Development of Latex Allergy. AORN. Juli 2000.
- (32) Allmers H, Brehler R, Chen Z, Raulf-Heimsoth M, Fels H, Bayr X. Reduction of Latex Aeroallergens and Latex specific IgE Antibodies in Sensitized Workers After Removal of Powdered Natural RubberLatex Gloves in a Hospital. J Allerg Clin Immunol. Nov 1998;102(5): 841-6
- (33) Hesse A, Peters KP, Koch HU. Type I Allergies to Latex and the Aeroallergenic Problem. Euro J Surg Supp. 1997;579:19-22
- (34) Newsom SW, Shaw M. A Survey of Starch Particle Counts in the Hospital Environment in Relation to the Use of Powdered Latex Gloves. Occup Med (London). Apr 1997;47(3):155-8
- (35) Tomazic JV dkk. Cornstarch powder on latex products is an allergen carrier. J Clin Immunol 1994; 93(4): 751-8.
- (36) Moriber-Katz, S. dkk. Contamination of perfused donor kidneys by starch from surgical gloves. Am J Clin Pathol.1998; Jul90 (1): 81-84.
- (37) Min KW dkk. Cornstarch embolization in renal transplants. Kidney Int 1972; 2: 291-2.
- (38) Lampe AS dkk. Wearing gloves as cause of false negative HIV tests. Lancet 1998; 2(8620): 1140-41.
- (39) Lomas JG dkk. False negative results by polymerase chain reaction due to contamination by glove powder. Transfusion 1992; 32: 83-5.
- (40) Sharekin JB dkk. The cytotoxic effect of surgical glove powder particles on adult human vascular endothelial cell cultures: implications for clinical users of tissue culture techniques. J Surg Res 1986; 41: 463-72.
- (41) Brehler R, Voss W, Müller S. Glove powder affects skin roughness, one parameter of skin irritation. Contact Dermatitis. Nov 1998;39(5):227-30.
- (42) Mirza R, Maani N, Liu C, Kim J, Rehmus W.A randomized, controlled, double-blind study of the effect of wearing coated pH 5.5 latex gloves compared with standard powder-free latex gloves on skin pH, transepidermal water loss and skin irritation. Contact Dermatitis Jul 2006;55(1):20-5.
- (43) Brehler R, Rütter A, Küting B. Allergenicity of natural rubber latex gloves. Contact Dermatitis. Feb 2002; 46(2):65-71
- (44) Pittet D, Alleganzi B, Boyce J; World Health Organization World Alliance for Patient Safety First Global Patient Safety Challenge Core Group of Experts. The World Health Organization Guidelines on Hand Hygiene in Health Care and their consensus recommendation. Infect Control Hosp Epidemiol. Sept 2009; 22 (9):1258-63
- (45) Boyce JM, Pittet D; Healthcare Infection Control Practices Advisory Committee. Society for Healthcare Epidemiology of America. Association for Professionals in Infection Control. Infectious Diseases Society of America. Hand Hygiene Task Force. Guideline for Hand Hygiene in Health-Care Settings: recommendations of the Healthcare Infection Control Practices Advisory Committee and the HICPAC/SHEA/APIC/ISA Hand Hygiene Task Force. Infect Control Hosp Epidemiol. Des 2002;23(12Supl):S3-40.
- (46) Phillips, V.L., et al. Health Care Worker Disability Due to Latex Allergy and Asthma: A Cost Analysis. American Journal of Public Health 1999;89(7), 1024-1028.
- (47) Field, E.A. The use of powdered gloves in dental practice: a cause for concern? J. Dent. 1997; vol. 25: 209-214.
- (48) Edelstam, J. dkk. Glove powder in the hospital environment - consequences for healthcare workers. Int. Arch. Environ Health 2002; vol. 75: 267-271
- (49) Herman B. 11 statistics on average hospital costs per stay. <http://www.beckerhospitalreview.com/eweekly/HRE121613.htm>. Diakses 16 Januari 2015.
- (50) A latex-free approach to operating room savings. How to make the switch. <http://ortoday.com/a-latex-free-approach-to-operating-room-savings/>. Diakses 11 November 2015.
- (51) Zimlichman E, Henderson D, Tamir O, et al. Health care-associated infections: ameta-analysis of costs and financial impact on the US health care system. JAMA Intern Med. 2013;173(22):2039-2046.
- (52) V. L. Phillips, DPhil, Martha A. Goodrich, MD, MPH, and Timothy J. Sullivan, MD, Health Care Worker Disability Due to Latex Allergy and Asthma: A Cost Analysis. American Journal of Public Health. Juli 1999, Vol. 89, No. 7.